DOCUMENT RESUME

ED 205 143 HE 014 207

TITLE Proceedings of the Annual Colloquium (6th).
INSTITUTION Pittsburgh Univ., Pa. Council of Graduate Students in Education.
PUB DATE 14 Jun 80
NOTE 249p.; Proceedings of an Annual Meeting of the Council of Graduate Students in Education (6th, Pittsburgh, PA, June 14, 1980).
AVAILABLE FROM Council of Graduate Students in Education, School of Education, University of Pittsburgh, 5L10 Forbes Quadrangle, Pittsburgh, PA 15260.

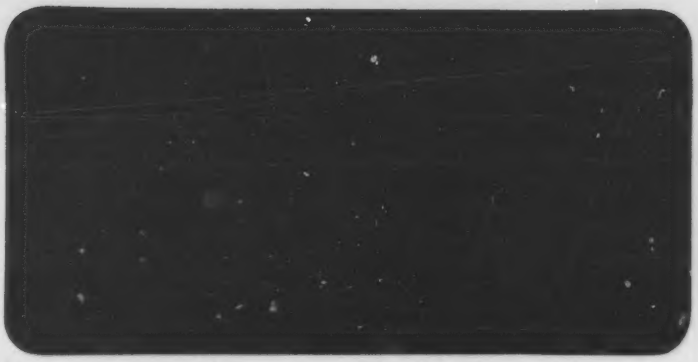
EDRS PRICE MF01/PC10 Plus Postage.
DESCRIPTORS *Child Abuse; Comparative Education; Developing Nations; *Educational Planning; Educational Research; *Elementary Secondary Education; *Futures (of Society); *Graduate Students; Higher Education; Inservice Education; *Learning Theories; Personnel Policy; Principals; Residence Requirements; Simulation; Teacher Attitudes; *Teacher Education

ABSTRACT

Papers collected from the Council of Graduate Students in Education's Sixth Annual colloquium on June 14, 1980, in the School of Education, University of Pittsburgh are presented. The program featured Wilma B. Smith, who addressed the colloquium theme, "Education: The 1980's and Beyond." The same theme was the subject of three panelists: Dennis Donham, Cynthia Sutherland, and William B. Thomas. Papers presented include: "Nigerian Universities and National Development: The Challenge of hte 80's" (Olusola D. Aina); "A Hermeneutical Study of the Synergism from Hemispheric Predominance and its Applications for Elementary and Secondary Education" (L. Susan Bockert); "An Ethnographic Account of the Cooperating/Student Teacher Relationship" (Fred DiNapoli); "The Inservice Preparation of Catholic Secondary School Principals for a Leadership Role in Local Staff Development" (Robert G. Duch); "Student-Designed Simulations: An In-Class Approach to the Problems of the Future Today" (Edward M. Greb); "The Effect of Parental Abuse and Neglect upon the Quality of the Child's Separation-Individuation Processes" (Louis Gregg Long); "An Investigation of the Prevailing Practices of Selected School Districts in the United States with Regard to Continuous Residency Requirements for Public School Employees" (Joseph E. Michaels); and "A Comparison of Two Theories of Learning" (Margaret Rusnock). (LC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED205143



"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Council of Graduate Students in Education, Univ. of Pittsburgh

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

HE 014 207

PROCEEDINGS OF THE

SIXTH ANNUAL COLLOQUIUM

Published by

THE COUNCIL OF GRADUATE STUDENTS IN EDUCATION

School of Education

University of Pittsburgh

1980

© 1980, COUNCIL OF GRADUATE STUDENTS IN EDUCATION
University of Pittsburgh

Any use of this publication requires a prior written permission from the Council of Graduate Students in Education.

COUNCIL OF GRADUATE STUDENTS IN EDUCATION
School of Education
University of Pittsburgh
5L10 Forbes Quadrangle
Pittsburgh, Pennsylvania 15260

PREFACE

The Council of Graduate Students in Education expressed its long-term commitment to scholarship in education by holding its Sixth Annual Colloquium on June 14, 1980 in the School of Education, University of Pittsburgh.

The program featured Dr. Wilma B. Smith, chairperson, Division of Educational Development and Service, School of Education, who addressed the colloquium theme, "Education: The 1980's and Beyond." The same colloquium theme was the subject of three panelists from the University of Pittsburgh: Dr. Dennis Donham (Student Affairs), Dr. Cynthia Sutherland (Women's Studies), and Dr. William B. Thomas (Foundations of Education).

Fifteen individual presentations were given by graduate students and alumni. The Council thanks the eight presenters for making their papers available to others in this volume. Thanks are also due to presenters Michael Duffy, Victoria Jean Dimidjian, Mark Heine, William Hiller, Jo Ann Klepin, Joanne E. Meldon and Jyotsna Vasudev.

The Council wishes to express special thanks to Colloquium Committee chairperson S. Lamont Hughes and Committee members D. Julie Agar and John E. Abuso who spent long hours programming the event. Committee members who provided some assistance were Petronella C. Kaweesa, Judy Williams, John McDonough and Curtis Upsher.

As in previous annual colloquia, the School of Education administration and staff supported the Council's commitment to this academic tradition by facilitating requests and communication.

This collection of papers represents the product of the input by everyone who had a hand in the Sixth Annual Colloquium.

TABLE OF CONTENTS

Contributor	Title
Olusola D. Aina	*Nigerian Universities and National Development: The Challenge of the 80's*
L. Susan Bockert	*A Hermeneutical Study of the Synergism from Hemispheric Predominance and its Applications for Elementary and Secondary Education*
Fred DiNapoli	*An Ethnographic Account of the Cooperating/Student Teacher Relationship*
Robert G. Duch	*The Inservice Preparation of Catholic Secondary School Principals for a Leadership Role in Local Staff Development*
Edward M. Greb	*Student-Designed Simulations: An In-Class Approach to the Problems of the Future Today*
Louis Gregg Long	*The Effect of Parental Abuse and Neglect upon the Quality of the Child's Separation-Individuation Processes*
Joseph E. Michaels	*An Investigation of the Prevailing Practices of Selected School Districts in the United States with Regard to Continuous Residency Requirements for Public School Employees*
Margaret Rusnock	*A Comparison of Two Theories of Learning*

NIGERIAN UNIVERSITIES AND NATIONAL DEVELOPMENT: THE CHALLENGE OF THE 80's

By

Olusola D. Aina
Educational Administration
University of Pittsburgh

ABSTRACT

As the decade of the 1980's is beginning, new trends in higher education policy will test the ingenuity of educational planners to produce an educational policy for Nigeria in the 1980's that will match changing educational demands with the needs of the Nigerian society. The 1960's and 70's have produced much publicized problems, namely, the problem of manpower shortage and unemployment among graduates, the issue of interregional education imbalance, the challenge of university automony, academic freedom and educational irrelevance to the needs of society. These problems have been largely unmet and can be expected to continue. But the 1980's will bring their own special challenges. With these factors in mind, the author examines the last three decades' environment, takes a background look at planning policies in the 30 years period and shows how the priorities of those policies will have to be reevaluated to meet the challenges of the future.

INTRODUCTION

Writing on the problem of education in developing countries, Coombs asked:

> What causes the paradox of developing nations who clearly need more educated man-power but who are unable to use it when they get it? Is education somewhat at fault? Has it expanded too rapidly? Has it produced the wrong kind of manpower? Or does the fault lie elsewhere--perhaps in the economy, or in economic development policies or plans? Where are the solutions to be found? Indeed, is there any solution?[1]

When Nigeria attained independence in 1960, there was a university college now the University of Ibadan. By 1972, Nigeria had six and four years later, the number totalled 13. The Commissioner of Education recently announced the projected founding of three additional universities before the end of 1980. This rapid expansion of higher education in spite of many odds shows how Nigerians view the promise of more and better education for their children. Governments of the federation of Nigeria are spending vast sums of money in this sector.

The aim of this paper is to analyze the problems of Nigerian Universities in the context of national development. The paper is organized into five sections. Section one examines the Nigerian philosophy of education. Section two covers the role of higher education from the colonial period through the national and regional competition of mid fifties to mid sixties. Section three is the planning for national

socio-economic development and the universities response. The fourth section deals with the controversies surrounding the federal government's takeover and the control of the universities and the accompanying debate and continuing problems and confrontation on Nigerian university campus. Finally, section five covers the challenges facing the universities in the 1980's and concluding remarks.

NIGERIAN EDUCATIONAL PHILOSOPHY

The nature of an educational system is determined primarily by the nature of the society it is intended to serve. The main national objectives of Nigeria are:[2]

(a) a free and democratic society;
(b) a just and equalitarian society;
(c) a united, strong and self-reliant nation;
(d) a great and dynamic economy;
(e) a land of bright and full opportunities for all citizens.

These national objectives are linked with the following educational philosophy:

(1) the inculcation of national consciousness and national unity;
(2) the inculcation of the right type of values and attitudes for the survival of the individual and the Nigerian society;
(3) the training of the mind in the understanding of the world around; and
(4) the acquisition of appropriate skills, abilities and competences both mental and physical as equipment for the individual to live in and contribute to the development of his society.[3]

Nigeria's new educational policy aims at achieving these objectives and

even more.

THE COLONIAL BACKGROUND

The roots of colonial education in Nigeria goes back to the colonial period when Nigerian leaders demanded a university as a means to their own emancipation. It was vital for their purpose that such a university should be comparable in every way with universities in Britain. The opening of the Yaba College of Technology in 1934 became a landmark in the history of the independence movement in Nigeria.[4]

Nigeria now has thirteen universities, seven of them established within the last couple of years. Ibadan remained the only university until independence. By 1962, there were four more -- the University of Lagos, the University of Nigeria at Nsukka, the Univeristy of Ife and Ahmadu Bello University in Zaria. Ibadan and Lagos were federally financed and the other set up on the prompting of the regional governments got most of their funds from their respective regions.

NATIONALISM AND REGIONAL COMPETITION

In the decade of decolonization and intense regional rivalries, 1955-1965, universities were seen as vital factors in the long-term educational, economic and political power of the regions. While the federal government planned its second university for Lagos, each of the three regions sought to control its own university and use it as an instrument of regional development. The Universities of Nigeria at Nsukka was established in the east in 1960, and Ahmadu Bello in the

north in 1962.

The pressures for each region, and now state, to control its own university and how to reconcile this with the principle or effective and planned development has become one of the most crucial problems in the development of higher education in Nigeria. We will discuss later some of the repercussions of these regionalism on the effectiveness or lack of it in the operations of the universities.

PLANNING FOR DEVELOPMENT

Higher education was on the concurrent list, thus making it impossible for both the federal and regional governments to take the initiative in the planning and funding of universities. Thus, while the Ashby Commission[5] envisaged the establishment of four universities, two federal and two regional, Nigeria has ended up by 1970 with six, owing to regional pressure for more institutions of higher learning.

The attempt of the federal military government to regulate this development through an advisory National Universities Commission which channelled federal government funds for the total support of federal universities and part support for state universities was not successful. The federal government has now placed higher education exclusively on the federal list. In this way, all the existing 13 universities and colleges of technology are financed and controlled by the federal government. The explanation for this action by the federal government has been summarized as follows:

(1) It is the belief of the military government that by transferring education to the concurrent list, the nation will have a national education policy, a common education law and system, uniform standards and greater mobility of the teaching form...

(2) It is hoped that the federal government will have greater control over the establishment of new universities and can also influence the existing ones to reflect national aspirations and goals.[6]

THE THIRD PLAN

The plan advocated for the establishment of four additional universities during the Third Year Development Plan. The goal quantitatively is to increase student intake from 23,175 in 1972-73 to 53,000 in 1979-80. By 1984, enrollment is expected to jump to 100,000, and on the projection that 5% of school leavers will go to University, it is estimated that 600,000 university places will be required by 1996. Below is the breakdown of the total student enrollment figure in the various disciplines.[7]

Enrollment in Nigerian Universities 1977/78

Discipline	Sub-Degree	First Degree	Post Graduate Diploma and Equivalents	Higher Degree	Total
Arts	650	5,558	3	270	6,481
Social Sciences	255	6,165		158	6,578
Law	183	1,823		22	2,028
Administration	334	1,845	137	117	2,43[illegible]

Education	2,716	6,069	316	314	9,415
Science	272	5,341	6	303	5,922
Environmental Design	92	943		128	1,163
Engineering and Technology	31	3,081	8	49	3,169
Agriculture	348	2,021	3	215	2,587
Veterinary		465		10	475
Medicine	61	4,686	28	44	4,819
Pharmacy	20	1,477		49	1,546
Prelim. and Basic Studies	825	1,860			2,685
Total	5,787	41,334	501	1,679	49,298

The government's objective in university expansion is to consolidate and develop the nation's system of higher education in response to the economy's manpower needs.

The federal government envisages an expenditure of ₦33 billion or, approximately, $45 billion for the Third National Development Plan out of which education at all levels will account for approximately $4 billion or 7.5%. The expenditures on universities--both for the expansion of existing ones and the building of the new ones--will account for approximately $400 million or 10.1% of the educational appropriation or .75% of the entire Plan Period. This represents an inadequate financial outlay for university expansion, considering the emphasis the federal government is placing on higher-level manpower development.

The Nigerian universities have responded to some of the government's call for full involvement in manpower development. Their courses cover a relatively wide range in the humanities, social sciences, basic sciences, agriculture, engineering, medicine, education, environmental design, law, creative arts and of course, administration. By 1972, all the Nigerian universities combined had produced a total of 16,432 graduates (first degrees only) distributed as follows: Lagos, 1,831; Ahmadu Bello, 2,685; Ife, 2,249; Nsukka, 3,439; Ibadan, 6,228.[8]

One can see that this is a very low output for 31 years of university education in Nigeria. While we do not dispute that the Nigerian universities have made some impact on the development of the country, the gap between the needs and supply has continued to widen. For instance, while the Udoji Commission found a 30 percent vacancy situation in the higher level management staff in 1974, it is now estimated at between 40 and 45 percent.[9] This lack is reflected in shortages of all levels of manpower. There is a shortfall in the supply of trained and experienced manpower at management, professional and intermediate levels. The shortage of management staff at a time when both the federal and state governments are expanding their economic activities and planning functions poses a severe challenge to the universities. This shortage is not confined to management staff alone. The shortage is most acute for all kinds of construction engineers, irrigation and agricultural engineers, architects, surveyors, doctors, dentists, pharmacists, farm managers, technologists and skilled artisans.

The federal military government has taken over full responsibilities for all the 13 universities in 1975. The government proclaimed its intention of ensuring that enrollment reflected the manpower needs of the federation. In order to coordinate enrollment on the Nigerian manpower needs, a university entrance committee called Joint Admission and Metriculation Board (JAMB) was set up. Because Nigeria is still heavily dependent on overseas personnel, especially for senior posts, the National Universities Commission has opened offices in London, Washington, Ottawa and Cairo for recruitment of personnel. It is estimated that the universities need additional 2,500 new academic staff between now and 1982.[10]

The intention to more than double the intake of students between 1975 and 1980 has raised several problems: prominent among these are that of finance, senior level staff, accommodation, and of course the traditional argument for autonomy, and student activism and confrontation.[11]

In spite of educational expansion in recent years, it must be stressed that little has been done within the Nigerian educational system to create nationalistic, upright, and diligent workers. It is through defaults like this that many of the development plans come to naught. Indeed, there is some evidence to suggest that in many African countries, skills and education have and are still being emphasized at the expense of attitudes and commitments.[12]

PROBLEMS OF FOREIGN UNIVERSITIES AND ADAPTATION TO THE NIGERIAN SITUATION

Nigerian universities are very much like the British ones from which they derived so much. Their statutes and structures are similar, they share the same ideals of autonomy of university councils and senates and maintenance of standards through the institution of external examiners. The Inter-University Council and the Commonwealth Associations of Universities help to foster those ideals.

When the former Head of State visited Ahmadu Bello University in 1977, he said that:

> The responsibility of the University to the youth, and therefore to our future is truly great. This responsibility would not have been discharged if all that we produce is a long list of graduates who are elitist, self-opinionated and materialistic and who thus set themselves apart from the very people who brought them up.

These ideals have many drawbacks: inadequate text and reference books, outdated and maladapted curriculum, insufficient finance and frustrated teachers.[13] The following excerpt from the Ashby Report reflects the general direction of what could be done:[14]

> The British system of university education suits Britain because there are many alternative routes to professional training and the prestige of those alternative routes is such that thousands of young people prefer to take them rather than to go to the university. In a country where these alternative routes are missing or any less prestigeous, the British university system is too inflexible and too academic to meet national needs...we believe that Nigerian universities should meet this demand on one condition: that what is required of them is indeed greater diversity and not lower standards.

THE ISSUE OF INTERREGIONAL EDUCATION IMBALANCE

Perhaps the most intractable problem of Nigerian universities remain that of the uneven development in the country. This is the greatest national problem which has to be tackled if social justice and political stability are to be achieved. The following is a breakdown of the University Admissions 1978/79 Academic Session.[15]

UNIVERSITY ADMISSIONS

1978/79 ACADEMIC SESSION

Below is the Joint Admissions and Matriculation Board's (JAMB) histogram translated into a table.

State	Admission	Percentage of national total	Population (1963)
ANAMBRA	1,740	12.0	3,596,618
BAUCHI	140	1.0	2,431,296
BENDEL	2,100	14.60	2,460,962
BENUE	510	3.50	2,427,017
BORNO	150	1.0	2,997,398
CROSS RIVER	770	5.40	3,478,131
GONGOLA	150	1.0	2,605,263
IMO	2,080	14.5	3,672,654
KADUNA	355	2.5	4,098,306
KANO	200	1.4	5,774,840
KWARA	860	6.0	1,714,485
LAGOS	290	2.0	1,443,568
NIGER	130	0.9	1,194,508
OGUN	1,095	7.6	1,550,966
ONDO	1,265	8.8	2,729,690
OYO	1,670	11.6	5,208,884
PLATEAU	220	1.5	2,026,657
RIVERS	550	3,8	1,719,925
SOKOTO	95	0.7	4,538,787
TOTAL	14,370	99.8	55,670,035

Whatever may be the explanation, it is clear that over 80 percent of the university placings available went to the candidates from the nine southern states. The editorial of the New Nigeria summarized the issue at stake this way:

> Whatever admissions were made into the universities outside JAMB cannot change the basic pattern of the admissions as shown in the graph--that is 80 percent of the university placings available went to the candidates from the nine southern states. In our present circumstances, this pattern is fraught with danger and output to be a matter of concern for those genuinely interested in the unity of the country.[16]

About a year ago, the six northern universities were closed down. The government ordered the closure of the institutions in order to avoid clashes among the students. As we noted earlier, this has made the control and development of universities a vexed political issue. Some scholars have suggested that the solution to the problem is some system of quotas on a state basis into the universities. Because of the general shortage of manpower in the country as a whole, the unpleasant political implications and the obvious repercussions such a policy would have on the universities, the quota approach has been resisted.

The preferred alternative is to seek even development from the grass roots, through Universal Primary Education, which is currently being implemented throughout the country, even distribution of secondary schools and a crash program of basic courses, say through the School of Basic Studies purposely equipped for university admission in the areas not adequately catered for. At the same time, the expansion in the

university system will make room for the increasing number of qualified candidates.

Since education is the key to development, there cannot be even development in the country if the special education gap of a whole region is allowed to widen. The universities need to be decentralized and they need to be more acutely aware that this is a serious challenge and as national institutions they can do no more but to face up to the challenge. The universities need to do this and to constantly review to what extent they are responding to the needs of the nation.

THE CHALLENGE OF UNIVERSITY AUTONOMY, ACADEMIC FREEDOM AND RELEVANCE IN NIGERIAN CONTEXT

These terms constitute the challenge facing the Nigerian universities. However, they have been variously interpreted to suit particular situation in the interest of the interpreter at the particular time. This has caused misunderstandings, confrontations and crises between university officials, students and the governments.

The term autonomy should be restricted to the right to appoint staff, select students, define courses, set examinations and awared diplomas and degrees. Even in those functions, the number of students taken for different programs must conform to the national high level manpower requirements spelled out by the federal military government. These courses must be coordinated to the social and economic national programs. This autonomy must be shared by the state by involving it in the different university committees, in the same way that the university

must be involved in the states development and implementation committee. A university in a particular community should be able to address itself to the problems and aspirations of the people in that community instead of living in a dream world.

Academic Freedom - The issue of academic freedom should be restricted to the expression of opinions in their areas of competence, only and in their researches, seeking the truth in order to spread enlightenment and not in aggravating controversies. Misinterpretation of their freedom has done a lot of harm to our universities in the past decade. This freedom must be used as an agent of change for progress and not for disaster.

University Relevance - Nigerian universities, like their counterpart institutions elsewhere, must transmit knowledge, provide necessary manpower, and advance knowledge by research on relevant problems. It has to do all these in order to make an effective contribution to a society which is changing all the time. Nigeria established these institutions because they need a type of higher learning which is appropriate to their needs, problems and aspirations, and not necessarily to meet the so called "international standards."

When we talk of relevance, it must not mean ignoring all other knowledge or research, all knowledge is relevant, but its application must be made specifically relevant to local needs. Relevance means relating disciplines to the students and society's past, present and anticipated future experiences. To be able to do this, universities

must be part of the local community that they seek to serve and change so that it improves, since the majority of the members of this community has no formal education.

At the present time, most of the research findings on Nigeria are to be found in ESOTERIC academic journals which are not accessible to 99 percent of the Nigerian populace. What is more, the system of reward with respect to promotion within the academic institutions encourages publications in foreign rather than local journals. In most of the Nigerian universities, newspaper articles are never to be included in a lecturer's resume as they are not only discounted as worth-while efforts but may in fact deduct more points in his favor. This policy is misplaced and should be revised. At this stage of our national development, all available media of information should be directed at informing the general public of the outcomes of research, and preferrably in vernacular.

CONCLUSION

Our research findings in this paper suggest that most of the existing educational system in Nigeria, including the universities are inadequate, being lopsided and partially irrelevant. They need changes in curricular, structure and in educational concepts. The curriculum needs to be made more relevant to local needs and situations, and the universities need to erase their elitist mentality which makes them seem foreign oriented. This will be difficult since 40 percent or more of the academic staff are still expatriates or non-citizens. Their

failure to identify themselves completely with the local community, holding themselves aloof, and demanding special privileges will make it very difficult for the total society to accept them as their own.

The direction of what needs to be done are:

1. That a university must serve the society which constitutes it and of which it is a part and parcel.

2. That any national institution which ignores its responsible involvement in the solving of the problems of its environment prescribes a recipe for its disaster or even extinction.

3. That Nigerian Universities must be committed actively and relating its work to the communities it seeks to serve.

4. That the role of the Universities must be clearly and specifically be redefined in terms of its political, economic and socio-economic ideals and ends.

5. There must be a recognition that principles must be put into practice if they are to be realities and not illusions. The curriculum must be work oriented.

6. The Universities must create a sense of public responsibility in the educated and to prepare students to work with the people, and to promote planned education and cultural development while not foregoing at the same time, the promotion of learning and research in the pursuit of truth.

Nigerian Universities must be committed actively and relating its work to the communities they seek to serve. President Nyerere once reiterated this sentiment by saying that:

> The University in a developing society must put the emphasis of its work on subject of immediate moment to the nation in which it exists, and it must be

> committed to the people of that nation and their humanistic goals... We in poor societies can only justify expenditure on a University of any type - if it promotes real development of our people... The role of a university in a developing nation is to contribute; to give ideas, manpower, and service for the furtherance of a human equality, human dignity and human development.

The above challenges are easy to state. To implement them is harder. The process of implementation do not lie solely with the universities but also with national, state and local governments. In addition, we need a forum for coordinating efforts between governments, industry and the universities to avoid duplication and waste.

Nigeria, like other developing countries, has enormous problems ranging from that of national unity and national identity to that of income inequality between the haves and have nots. As a country, we do not have a common unifying language. In a country where all educational institutions are fully supported by the state, it has a right to expect the best benefits that the nation and the majority of its citizens derive from the system.

FOOTNOTES

1. Phillip H. Coombs, The World Educational Crisis: A Systems Analysis, (Paris: International Institute for Educational Planning, 1967).

2. Federal Republic of Nigeria, Second National Development Plan, 1975-80, Ministry of Information, Lagos, p. 23.

3. Federal Republic of Nigeria, National Policy on Education Ministry of Information, Printing Division, Lagos, 1977, p. 23.

4. Babatunde A. Fafunwa, The Growth and Development of Nigerian Universities (Washington, D.C.: American Council on Education Overseas Liason Committee, 1974).

5. Federal Government of Nigeria, Investment-In-Education (Movinch, Janold & Sons, Ltd., 1960).

6. A.F. Ogunsola, "The Federal Take-Over of Higher/University Education and Its Implications for Federal and State Efforts in Manpower Development" in Suleimanu Kumo and Festus Nze, Perspectives in Human Resource Development in Nigeria, op.cit., p. 83.

7. Federal Government of Nigeria, Bulletin of the National Universities Commission, No. 6, Lagos, 1978.

8. J.F. Ade Ajayi, "Higher Education in Nigeria," African Affairs, Vol. 74, 1975, p. 420-426.

9. Humphrey N. Nurson, "Nigeria's Third National Development Plan 1975-80: Major Constraints to Implementation," The African Studies Review, Fall 1978, p.

10. "Nigeria Economic Survey," New African, February 1979, p. 47-86.

11. Federal Government of Nigeria, Report on the Recent Disturbances in Some Universities, Supreme Headquarters, Dodan Barracks, Lagos, 27th April, 1978.

12. J. Lowe et.al., Education and Nation-Building in The Third World, Ibadan, Onibonoje Press, 1973, p. 219.

13. J.F. Ade Ajayi, "Higher Education in Nigeria," op.cit., p. 420-426.

14. Ashby Report, Investment in Education, op.cit., p. 22.

15. University Admissions 1978/79 Academic Session, in New Nigeria, Kaduna, March 5, 1979, p. 1.

16. Ibid, editorial page.

17. Julius K. Nyerere, Ujamaa, Essays on Socialism, "Education for Self-Reliance," (Oxford University Press, London, 1968).

A HERMENEUTICAL STUDY OF THE SYNERGISM FROM HEMISPHERIC PREDOMINANCE AND ITS APPLICATIONS FOR ELEMENTARY AND SECONDARY EDUCATION*

By

L. Susan Bockert

Curriculum and Supervision

University of Pittsburgh

*Funded in part by an Educational Grant, School of Education, University of Pittsburgh, November, 1979.

A HERMENEUTICAL STUDY OF THE SYNERGISM FROM HEMISPHERIC PREDOMINANCE AND ITS APPLICATIONS FOR ELEMENTARY AND SECONDARY EDUCATION

By

L. Susan Bockert, Ph. D.
University of Pittsburgh

Education for all has been a democratic ideal. American education has espoused that ideal in words, but in practice it has imitated a European system of elitism. This elitest system sorts students, encouraging those who have a gift for verbalization. As early as the Eighteenth Century there were concerned individuals asking for education which would adapt to the child instead of expecting the child to conform to a system. In the Twentieth Century structured individualized curricular programs tried having all students use the same materials in the same way, but they used them at their own pace. With this method, teachers found that they could not produce materials fast enough for some students while other students fell farther and farther behind. The spread between accomplishments of students in the same class became enormous. The next movement involved identifying students who were not at grade level and labeling them "brain impaired," "learning disabled," etc. In contrast to this, research by neurosurgeons, neurobiologists, and psychologists suggest a continuing evolution of potentiality and of plasticity in each human brain.

A. Physical Background of Hemispheric Predominance

It is not determined how much of the human brain's behavior is

determined by structure or how much is determined by the cumulative imprint of experience. Although conclusive proof that structure in the brain denotes function does not exist, yet it is assumed function cannot exist without appropriate structure (Goldman, 1976). In examining structure, it is a common procedure to investigate the evolutionary origin of the structure.

1. Evolution of Encephalization

The Evolution of Encephalization subsection is divided into four areas: a) Flatworms; b) Reptiles; c) Mammals; and d: Homo Sapiens.

a. Flatworms. When looking at the evolutionary origin of function, it is common to examine the evolutionary origin of structure. Encephalization of homo sapiens is traced back to the lower phyla of invertebrates (i.e., flatworms such as platyhelmenthes) who appeared more than three hundred million years prior to mammals appearance on earth. With the advent of flatworms, the nervous system evolved toward a neuronal tube with sensing organs (nose, eye, inner ear) at the anterior end (Jollie, 1977; Hodgson, 1977). The larger flatworms show considerable lateral development, with side lobes. No evidence exists of any asymmetry of function in the two sides.

The bilateral symmetry of function in the flatworm enabled them to receive information coming from both sides of their bodies. They could control either half of their body in an adaptive pattern. Unlike hominids (animals with asymmetrical brains), flatworms and other lower vertebrates have little option over their response to a stimulus. These animals live only in the present; they do not construct a picture of reality, past or future. Since their brains are occupied with determining the nature of the present and with responding to it, removal of one hemisphere or asymmetrical functioning of the hemispheres would drastically reduce the animals' adaptive responding

(Levy, 1977a & b). However, from this point in the evolutionary process, all species had a spinal column and brain with nerves radiating to all parts of the body.

Each successive phyla are thought to have increasingly larger brains in comparison to its body size. Encephalization is compared to a building to which wings and superstructure have been added but for whom the foundation remains and influences the rest. Reptiles are considered the next major phyla in the history of the encephalization of the homo sapiens' brain (MacLean, 1973, 1978).

b. Reptiles. One branch of reptiles, called mammal-like reptiles, populated the earth in profuse numbers. Their remains are found on every continent, including Antarctia. From this species evolved the mammal, but no animal exists today exactly like what the mammalian reptiles are thought to have been. Varanus lizards are thought to be the closest reptillian relative of homo sapiens. These lizards showed patterns of behavior common to mammals, including homo sapiens (MacLean, 1973; 1978). These patterns of behavior are divided into five categories: (1) Isopraxic--behavior in which two or more individuals engage in the same kind of activity; (2) Perseverance--repetitious acts that include conflictive situations; (3) Reenactment--repetition of behavior which represents obeisance to precedence, "We've always done it this way;" (4) Tropistic--positive or negative responses to partial or complete representations, whether alive or inanimate, and includes what ethologists refer to as imprinting and fixed action pattern; (5) Deceptive--artifice and deceitful tactics such as that used in stalking or evading another (MacLean, 1978). MacLean (1973, 1978; Carpenter (1978); Regal (1978) agree that these behaviors continue in the species called homo sapiens.

These behaviors enabled the reptile to obtain food by waiting for it to come within its own territory. When conditions in nature changed and it needed to engage in active foraging, evolution provided it with structural changes in the brain.

Active foraging required a memory system. There are great selective advantages from the development of a brain which provided enlarged memory capacities and enlarged and advanced information processing capacities and systems. The active foragers needed to make associations between sights, sounds or smells of particular species as well as their microhabits and occurrence in time. In addition, associations between particular species and its own motor patterns optimized the chances of securing particular types of foods. The mammalian (paleommalian, cerebellum, limbic system) brain evolved to provide this awareness.

c. Mammals. Mammals construct a model of reality which include past learnings, expectations, needs, desires, motives and emotions as well as the immediate stimulus. If the mammal lost one half of the brain, it could still construct a total picture of reality (Levy, 1977). As one branch of the mammals, primates, continued the evolutionary process. They show only a slight degree of differentiation in their bones. Only the cephalized part continued malleable. Although differentiation of any organ is an immediate factor of superiority (i.e., for survival), it also restructs the animal in that direction. "Specialization paralyzses, ultra-specialization kills" (Teilhard, 1959, p. 159). Conditions continued which permitted the brain to grow.

The higher mammal from which primates evolved needed to walk upright so that its hands could be free. With the hands free for food

gathering, the jaws were freed from that task. This permitted the thick band of maxillary muscles which had imprisoned the cranium to relax. It is this two-footedness which allowed the brain to grow. This also permitted the eyes to come closer together and to converge on what the hands held. Thus primates achieved the posture of reflection (Teilhard, 1959).

With the growth of the brain came the possibility of consciousness. The exact moment in history that this evolved is not known. There is no trace of homo sapiens prior to the Pleistocene Period when the land was drained, revines carved, and thick layers of alluvium spread over the plains (Teilhard, 1959).

d. Homo sapiens. When the geographical conditions were "exactly right" for survival, primitive man appeared. The cerebrum had grown like a mushroom cap over the earlier structures of the brain. Unlike the mushroom, the cerebrum "cap" is divided down the middle by a deep fissure which produces two hemispheres. In their gross physical characteristics, these hemispheres mirror each other. It is these hemispheres which denote the species called homo sapiens.

Evolution continued until our present species, with an asymmetrical brain, appeared.

> Once our ancestors acquired the genetic capacity to separately program two different neurologic organizations for different sets of functions, the further evolution that made us human was not directed toward selecting some one ideal type of brain organization and cognitive structure, for no such type could exist. Rather, it was directed toward selecting a variety of types, each of which would add to social organization and cohesion by bringing to the social group particular abilities, skills and ways of thinking that would help to form an enduring tapestry of human society (Levy, 1977, p. 271).

As soon as a specis had demonstrated the characteristics of homo sapiens, it had also developed an asymmetrical brain (Oppenheimer, 1977). MacLean (1978) and Carpenter (1978) also believe that it had

the remains of the reptillian brain (reptillian complex) and of the mammalian brain (limbic system) underneath the cap of the cerebrum. Both of these earlier evolutionary brains continue to influence behavior of present-day homo sapiens.

2. Present Structure of the Brain

The largest portion of the brain of homo sapiens, with which this study was primarily concerned, is the cerebrum. The right and left hemispheres, the end-brain, and the telencephalon comprise the cerebrum. The hemispheres are connected by the corpus callosum. Surrounding a cavity, each hemisphere is composed of convoluted nerve tissue. The nerve tissue is constituted of ten thousand million nerve cells, each less than 1/10 mm. in diameter. Each nerve cell (neuron) has around ten thousand synapses or links with adjacent neurons. Thus, the homo sapien brain is characterized by some 10^{13} synapses. This unimaginably large number exceeds the total number of elementary particles (electrons and protons) in the entire universe. "It is because of this immense number of functionally different configurations of the human brain that no two humans, even identical twins raised together, can ever be really very much alike" (Sagan, 1977, p. 42). Kandel (1979), however, believes that much prewiring of synaptic connections exists. He agreed, though, that even minor experiences would modify synaptic connections in the brain. Rosenzweig's (1976) and Greenough and Jerisk's (1969) studies indicate that synaptic connections remain modifiable throughout life if the individual receives sufficient stimulation. Although some skills are developed more slowly than others for specific individuals, "an inability to do something at one stage of development or practice is no proof that it cannot be accomplished later on" (Hirst, Neisser & Spelke, 1978, p. 61).

Waves of synaptic connections design holograms of every stimulation (pribram, 1971, 1977). Neurons may be involved in more than one hologram. Yet it can always reproduce the earlier hologram. A specific experience is not stored in any one part of the cerebrum. It is hypothesized that the homo sapiens' brains, individually, resemble the entire huniverse through this hologram analogy.

The hologram theory appears somewhat in contradiction to the findings of Bogen (1969a, b 1959; Bogen & Bogen, 1969; Sperry, 1968, 1977 and Gazzaniga (1975, 1977). Their studies, particularly on patients whose corpus callosum had been severed indicated that the hemispheres are not only asymmetrical in structure (Rubens, 1977; Gerschwind, 1974), but also in function. Because the corpus callosum no longer transferred stimulation (Turkewitz, 1977; Galin, 1977) from one hemisphere to the other, these researchers were able to identify which hemisphere performed which style of task with greater efficiency and with greater precision. Bakan (1971) and Kinsbourne (1974) found that the individual with an intact corpus callosum also lateralized the performance of some tasks. This, too, supports the contention that the hemispheres are lateralized for function in most persons. The hologram theory need not contradict Gazzaniga et al's research. The hologram theory refers to storage of experience while the lateralized function theory refers to processing of experience.

Medical research has proven that the homo sapien brain develops asymmetrically in structure while <u>in utero</u> (Wada, 1977; Turkewitz, 1977; Gardiner & Walter, 1977; Jerison, 1977; Levy, 1977a and b; Cowan, 1979). Hemispheres of females and males develop somewhat differently, with the male's having functions more lateralized than females (Goldman, 1976). Psychological research demonstrates that the right and left hemispheres

are different in function. The right hemisphere uses images for problem solving while the left employs language; the right hemisphere absorbs simultaneous information whereas the left hemisphere sorts the information for sequential processing (Sperry, 1975; Gazzaniga, 1977; Bogen, 1979).

Electrical stimulation of a number of sites in one hemisphere of the cerebrum can produce a deviation of the eyes toward the opposite side. This implies the evolution of a system that produces contralateral orientation in the presence of asymmetric hemispheric activity. Trevarthen (in Gur & Gur, 1972) claims that an attention bias toward the side of spce contralateral to the more active side follows a stimulation, such as individual's being asked a question by the investigator. The direction in which a given individual moves his eyes upon receiving a stimulus is fairly constant (Day, 1964).

Upon receiving a stimulus, right-movers performed better on specific tasks that require visual attention. They display less resting electroencephalogram alpha waves, prefer careers in science, and had relatively higher mathematical SAT scores (Bkan, 1969, 1971). Contrary to this, left-movers repcrt clearer visual images and are more fluent verbally than right-movers. They display relatively more resting electroencephalogram alpha rhythms. They usually choose careers involving people and perform better verbally than mathematically on the SAT tests.

Opposite of these results, Kinsbourne (1973) found the type of task or stimulus determined the direction in which an individual moved his eyes. Subjects showed a significant movement of their eyes to the right for verbal problems and either an upward or to the left for spatial problems. Kocel, Galin, Ornstein and Merrin (1972) replicated Kinsbourne's experiments and came to the same conclusions.

When Gur and Gur (1977) tried to resolve this contradiction in lateral eye movements, they conjectured that when testing is done with questioner face-to-face with subject, more anxiety is produced. The subject, under stress, relies on his/her personally preferred cognitive style even though it may be the "wrong" hemisphere for a given task. When the questioner sits behind the subject, the subject will use the "right" hemisphere. Because the subject is under less stress, he will be able to use the hemisphere best organized for the particular kind of task. Fur and Gur's research confirmed this hypothesis.

Each hemisphere of the human asymmetrical brain exerts some dominant control over a way of processing stimuli, over specific skills. There is an anormous variety of mental gifts among individuals within these specializations. Some persons may be spatially bright while they are verbally dull, or spatially dull and verbally bright. Some may have a better short-term memory, another long-term memory, still another a faster processing capacity. Education could be designed for enhancing and developing this giftedness.

> When a child's talents lie in visual-spatial relations and he or she is being forced into a curriculum that emphasizes the verbal articulatory modes of solving a conceptual problem, this child will encounter enormous frustration and difficulty which may well result in hostility toward the teacher and, worse, toward the learning process itself (Gazzaniga, 1977, p. 94).

An oversimplification of the division of labor between the right and left hemispheres, however, does not account adequately for the rich capabilities for fusion and synthesis reflected in human behavior. It may be that "two different modes in their interrelationship of facilitation and inhibition produce, in a sort of stereoscopic fashion, a new dimension or perspective that is more than the sum of the parts" (McLaughlin, 1977, p. 11).

The next section synthesizes educational applications which have considered hemispheric predominance or which are consistent with research on hemispheric predominance or which consider the energy which results from the collaboration of the hemispheres.

B. Educational Applications of Hemispheric Predominance

For most persons, the hemispheres of the asymmetrical brain become specialized for a particular mode of processing stimuli and for constructing a particular kind of picture of reality. The right hemisphere uses imagery for processing stimuli while the left hemisphere employs language for the same purpose. Research up to this time indicates that the right hemisphere arrives at solutions for problems in a "gestalt" manner by considering several stimuli simultaneously. The left hemisphere handles stimuli in a serial or sequential fashion such as in inductive and deductive reasoning (Bogen, 1969a, b; Ornstein, 1972; Gazzaniga, 1975, 1977; Sperry, 1974; Nebes, 1977; Krashen, 1977).

Both hemispheres can continue to learn throughout life. The continuing plasticity of the brain encourages the idea that at any point in his/her life an individual can spurt in the growth of synapses within the brain (Velley & Cardo, 1979). This implies that development of one hemisphere or the other can take place at any time in an individual's life when s/he receives proper stimulation (enriched learning environment) (Rosenzweig, 1976).

In Western culture, education has developed the modes of learning favored by the left hemisphere. Some researchers have looked at the modes of learning favored by the right hemisphere and how education could encourage the use of both modes in a complimentary way. When a person succeeds in using both hemispheres, synergy takes place.

1. Right Hemisphere Potentialities

In most persons the right hemisphere is mute. Instead of language, it problem-solves through the use of images. These images may be of a visual, tactile, kinesthetic, or auditory nature (McLaughlin, 1977). Physical scientists: Einstein, Faraday, Kekule, Helmholtz, Herschel, Maxwell, Telsa, Watt, Bohr, Born, Planck and Schrodinger (Walkup, 1965; Shepard, 1978; Miller, 1978; Hadamard, 1945); biological scientsts: Darwin (Gruber, 1978) and Watson (Shepard, 1978); artists: Cocteau, Moore, Picasso (Ghiselin, 1952) report visual imagery in their work. Composers: Mozart, Schumann, Wagner (Seashore, 1938, 1967), Tschaikowsky (Agnew, 1922) cite auditory imagery as being responsible for their musical works. Athletes: Guyot, Bochatay, Febre, Daetwyler, Nadig, Collumbin, Russi, Charlet, Tickner, Alexeyev, Nicklaus, Kacjlin and Schwarzenegger particularize tactile and kinesthetic as well as visual imagery in their successes competition (Levy, Agresti & Sperry, 1968; Wolff, 1977; Brown, 1976; Lund, 1975, Ostrander & Schroeder, 1979).

Although it is believed both sexes employ imagery in the right hemisphere, it is now thought they do so in different ways, presumably because when the neurons are differentiating, gonadtrophins are present in the developing brain (Goldman, 1977). When preschool males and females were asked to mentally rotate or fold an object, males outperformed females. When asked how they performed the task, males typically answered, "I folded it in my mind" while females attempted a logical, verbal answer. Males were so superior in finding a path through mazes that tests of this type were dropped from National Merit Scholarship Tests as being too biased.

Electroencephalogram tests revealed that in tasks requiring spatial concepts, the right hemisphere of males was activated consistently.

When performing the same tasks, females' both hemispheres are activated, indicating that spatial ability is not as lateralized in females as in males (Restak, 1979).

In other right hemisphere skills, females are superior. Females old enough to cooperate show increased skin sensitivity, particularly in the fingertips. By four months of age, a female will babble to her mother's face, seemingly recognizing her as a person. Males are just as likely to babble to a blinking light, geometric figure, etc. Males, however, have a superior sense of body position and of gross motor movements (Restak, 1979). Overall, males seem superior in right hemisphere tasks, particularly those that require a spatial factor.

Besides the spatial factor of perceiving, manipulating, and remembering the spatial relationships of objects to one another and to the individual involved, the right hemisphere perceives and remembers visual, tactile, and auditory stimuli which are complex, fragmentary, or hard to label and describe verbally (Nebes, 1977). Also, the right hemisphere reasons by a nonlinear mode of association instead of syllogistic logic; it solves problems by handling multiple-converging determinants rather than by a single causal chain, it recognizes in a gestalt fashion in contrast to determining parts of a problem or object (McLaughlin, 1977).

The right hemisphere is superior in "seeing" the whole of something when a part is missing. This is true whether the "something" is a face, a geometric drawing, or an abstract problem (Bever, 1975). Abstract problems are dealt with in an intuitive fashion. The person "knows" (intuition) the answer and recognizes the answer when presented with the image. This intuition can be trained just as any left hemisphere ability can be trained (Ostrander & Schroeder, 1979). Sometimes the person

recognizes the solution in a dream or in the so-called twilight period (that state of being between waking and sleeping). Budzynski's (1972, 1976) biofeedback research indicates that this twilight period is one when the right hemisphere is more active.

In addition, activity within the right hemisphere apparently can control objects and events outside the individual. Bry (1978); Kahn (1979); Silva (1977a, b, c, d) and Ostrander & Schroeder (1979) contend that the individual can imagine the ideal solution to a problem (in imagery). The individual then has the ability to bring that solution into reality.

The right hemisphere is not bound by reality. There is no future or past; everything is in the "now" (O'Connor & Jimenez, 1970; Linn & Linn, 1974, 1977). This ability works with another ability of the right hemisphere which is to accept information in a random fashion. Without the reordering of material, the right hemisphere arrives at solutions to problems (McKim, 1979). However, it may be unable to verbalize the solution. The right hemisphere has some words it can use (mostly nouns), but these are not organized for use in logical propositions, e.g., a song can be sung, but the same words cannot be phrased into a meaningful sentence. "Words are dealt with in a punning, changing, metaphoric, symbolic fashion wherein the shifting depends on context and pattern" (Galin, 1974, p. 37).

Galin (1977) hypothesizes that dreams issue from the right hemisphere. In a dream Kekule (a Twentieth Century physical scientist) recognized the structure of the benezene ring. After having studied the problem for some time, Kekule fell asleep. In his dream, he saw the atoms dancing, then twining and twisting like a snake. Suddenly the snake seized its own tail and continued to whirl. Kekule awoke abruptly

and recognized that the whirling snake suggested that organic compounds were closed rings (Koestler in McKim, 1972). Using his left hemisphere, Kekule was able to systematically test out this hypothesis and to write about it. Also, Jung (1958) has long maintained that dreams constituted a way in which the mute self (he called it the unconscious and not the right hemisphere) communicated with the verbal self. Patients were instructed to write down their dreams. After recording a number of dreams, they were told to analyze their dreams for patterns, a left hemisphere activity.

2. Left Hemisphere Potentialities

Looking at problems and objects in parts (analysis) is one of the potentialities of the left hemisphere. This holds true even in instances of analyzing melodies, although music is ordinarily thought of as being a speciality of the right hemisphere. Bever (1975) presented monaural melodies to both musically educated listeners, who ordinarily listen to music in an analytic manner, and to musically uneducated listeners, who "focus on the overall contour of the melody" (p. 539). Their research showed that educated listener possessed a right-ear advantage for melody recognition while the uneducated listener showed a left-ear advantage. He concluded that the left hemisphere is specialized for "internal stimulus analysis" (p. 539). Internal stimulus analysis is likely to be a part of the left hemisphere's superiority for encoding. Stop consonants (i.e., k, r, p) need the greatest amount of decoding. In Cutting's (1972) research, there was definite right-ear advantage for stop consonants.

The encoding needed for language is a left hemisphere task even when the language depends on tones rather than distinct words, such as the Thai language. In the Thai language, the pitch in which a word is

spoken changes the meaning of the word. For example, the Thai word "naa" spoken with a high tone means "aunt" while the same word spoken with a lower tone means "field." Van Lancker and Fromkin (1973) found that Thai speakers show a right-ear advantage for syllables differing only in linguistic tone. The left hemisphere, then, is specialized for decoding language.

Language is developed earlier in female infants. They speak sooner, have larger vocabularies, and rarely demonstrate speech defects. They also sing in tune at an earlier age. The muscles of fine control in the throat and hands are developed earlier in females. Therefore, females read and write sooner, and they learn foreign languages more easily (Restak, 1979). It would seem that females develop their left hemisphere earlier while males develop their right hemisphere sooner. Language is a later acquisition for males although it is lateralized to the left hemisphere in most males.

Through language, Platonic philosophy offered a hierarchial structure for society. In The Republic, Plato designed a society which was completely hierarchial, with absolute power by cultural inheritence in the hands of a minority of philosophers, the Guardians. Each strata of the society also had its role in relation to every other strata. Like his utopian society, Plato's concept of the universe and of homo sapiens' mind was likewise hierarchial or linear. Missing was any sense of individuality in the Republic, the universe, or in a person's mind (Blakemore, 1977). Plato apparently considered only the left hemisphere functions. His position influenced Western culture's bias toward the left hemisphere. Samples (1976, 1974) considered this bias toward linearity a stiffling of the "metaphoric mind" (right hemisphere).

Traditionally, it has been thought that the person's mind was

the seat of all logical, linear thinking. Any other kind of thinking was not considered truly intellectual.

Intelligence quotient tests supposedly measured the student's intellectual ability. However, these tests measure mostly linear or language abilities. Yet schools use them to sort students according to "ability."

Elementary education, in most schools, is structured for the female brain at that stage (Restak, 1979), for the left hemisphere (Edwards, 1979) and for the reenactment behavior of the reptillian complex (MacLean, 1973, 1978). Secondary education, in most schools, is ordered for the male brain at that stage of development (Restak, 1979); still for the left hemisphere (Bogan & Bogan, 1969) and still for the reenactment behavior of the reptillian complex (MacLean, 1973, 1978).

3. Methodologies Which Increase Use of Right Hemisphere

Elementary and secondary education should be mandated to provide learning opportunities which maximize the potential of both the right and the left hemisphere. Methodologies have been developed which involve both hemispheres. Some have not been used in school systems but are intended for individual growth. These are: Centering (Hendricks & Wills, 1975; Hendricks & Roberts, 1977; Richards, 1964); Silva Mind Control (Silva, 1977a, b, c, d, 1978); Intensive Journals (Progoff, 1975). They all include ways of getting in touch with the right hemisphere which is ordinarily mute.

Other methodologies have been designed specifically for subject areas in elementary and secondary schools. They are: Arts (Regelski, 1978; Edwards, 1979a and b; Bonny & Savary, 1973); Athletics (Levy, Agresti & Sperry, 1968; Wolff, 1977; Brown, 1976, Lund, 1975; Arnot & Monroe, 1977); Composition (Barranger, 1979); Literature (Ornstein,

1975; Khatena, 1975; Richa m o nd Virginia Public Schools, 1979); Mathematics (Lieberthal, 1979; Ambrose, 1979); Reading (Buzan, 1976, Lozanov, 1978; Rochester, New York School District, 1979; Pressley, 1976; Bodem, 1975); Religious Education (O'Connor & Jimenez, 1977; Thera, 1973); Science (Bry, 1978); Spelling (Stocker, 1979; Buzan, 1976; Lozanov, 1978).

Some learning theorists developed methodologies which are applicable for many school subject areas. These include: note-taking skills (Buzan, 1976); review and memory skills (Buzan, 1976; Silva, 1977; Lozanov, 1978); imagery skills (Bry, 1978; Silva, 1977; Ostrander & Schroeder, 1979). The successful methodologies all include four elements: relaxation of the students, a positive and supportative atmosphere from someone in authority, rhythm in terms of breathing and music; and imagery through internal and external visualization.

Although Pearce's (1977) research indicates that dendrites grow when immersed in ACTH activated by stress, most other research indicates that stress hampers learning as well as damaging the body (Selye, 1976; Lozanov, 1978; Silva, 1977d).

Education which engrosses both hemispheres is more relaxed, joyful, refreshing. The student becomes less fatigued while learning more. Self-awareness grows along with self-esteem (Lozanov, 1978; Silva, 1977d; Samples, 1976, 1974, 1979). Visual thinking (McKim, 1972a, 1979; Miller, 1979; Richard & Harrison, 1979) and kinesthetic literacy (Leonard, 1971) can be learned by everyone to the same extent that verbal reflecting and phrasing is taught in Western education today. When both hemispheres are educated, synergy can occur. Samples (1976) states that "Synergy exists when all the parts of a system work together so that their effect is greater than the sum effect of the parts working independently" (p. 89).

Education of both hemispheres succeeds best when body metabolism slows to around sixty heart beats a minute or when the brain emits alpha waves instead of beta (Budzynski, 1973, 1977; Lozanov, 1978). Americans need more training for relaxation and/or slower metabolism so that ameliorated learning can occur (Ostrander & Schroeder, 1979).

C. Recommendations for Further Research

Much research on the hemispheres of the cerebrum is transpiring in many places throughout the world. Additional topics which should be investigated are:

1. Graduation from secondary school should exact visual thinking and kinesthetic literacy as well as verbal reflection and phrasing. Research should be channeled toward identifying methods for instructing visual thinking and kinesthetic literacy and for establishing requirements for graduation.

2. Education should reconsider its focus on remediation. Instead it should enable each individual to realize his/her own unique giftedness (i.e., short-term memory, spatial reasoning) and how this giftedness could be directed toward achieving society's goals (i.e., reading at an acceptable level). Additional study is also needed for developing tests which diagnose those unique gifts of each student and to identify which learning experiences would maximize the gift.

3. Female and male brains differ in the laterality of functions, particularly in early stages of development. Descriptions of behavior of students labeled hyperactive are similar to descriptions of modes of learning favored by the right hemisphere. Ninety percent of elementary students labeled hyperactive are males (Restak, 1979). Studies concerning the advisability of separating females and males during nursery and primary school years should be pursued. Modes of instruction and

expectations of conduct should be varied respective to the sex of the child.

4. Curriculum, modes of instruction and supervision courses based on the physiology of the brain should be included in teacher and administrator pre-service and in-service training programs. The potentaility and the continuing plasticity of each homo sapien brain should be stressed.

5. Studies which would ascertain if cultural groups (whether culturally grouped because of economic status or ethnic heritage) have a predisposition in the direction of problem-solving modes of one hemisphere or the other should be conducted. Especially Native Americans and Blacks living in reservations or in ghettoes and whose learning, according to achievement tests, is below the national norm, should be included in pilot studies which would teach to the right hemisphere in initial learning experiences.

6. Buzan (1976), Lozanov (1978) and Stocker (1979) outline methods for teaching spelling and reading. Buzan's and Lozanov's strategies emphasize that the words be taught as whole concepts and as they relate to the youngster's background. Stocker's procedures, on the other hand, teach individual letters, sounds and combinations. All three use visualization and a relaxed, supportative atmosphere. Studies should be conducted among various groups to ascertain whether one method is preferable for a particular group or individual in place of another method.

7. Selye's General Adaptation Syndrome (1978) describes symptoms of extreme stress. Lozanov (1978), Silva (1979), Budzynski (1978) and McKim (1979) have established that students learn best in a relaxed atmosphere with a supportative, authoritative person as teacher. An

investigation could be conducted in which students identified as learning disabled or brain impaired would be taught using one or more of the above mentioned methods.

8. Studies in each subject area of the school curriculum should be conducted which would develop modes of instruction involving both hemispheres of the cerebrum.

9. Piaget provides developmental stages of the left hemisphere. Similar research to identify growth stages of the right hemisphere should be pursued.

D. Methodology

The objective of this study was to synthesize the research from the various fields which focused on hemispheric predominance and to explicate applications for education. Heremeneutical research methodology was seen by the writer as the most appropriate form for reaching the above objective.

"Hermeneutics is the study of understanding, especially the task of understanding texts" (Palmer, 1969, p. 7). Insofar as texts (research literature) are objects, they are accessible through scientific methods of interpretation; as works, they call for more comprehensive modes of understanding. The field of hermeneutics developed to describe these latter, more specifically humanistic modes of understanding.

Hermeneutics is derived from the Greek verb, heremeneuein (generally translated "to interpret") and the noun, hermeneia ("interpretation"). The words were derived from the Greek god, Hermes. "Hermes' function was that of transmuting what is beyond human understanding into a form that human intelligence can grasp" (Webster's New Twentieth Century Dictionary Unabridged Second Edition, p. 851). The various definitions of hermeneuein suggest the process of bringing a work or

situation from unintelligibility to understanding, especially as the process involves language. The three definitions of heremeneuein are: to express aloud in words, to explain and to translate. Each includes an aspect of interpretation (Palmer, 1969; Brown, 1968).

The definition, "to say aloud," includes the supposition that language was meant to be spoken and derives much of its power from speaking. Although written language fixes and preserves history and literature, written language also weakens communication of history and literature since it lacks primordial "expressiveness." Even in instances, such as novels, where language is intended to be read silently, the reader supplies the expression in accordance with his understanding of the text. Every reading is interpretation (Palmer, 1969; Ricoeur, 1976).

Interpretation as explanation, rather than saying, emphasizes the discursive aspect of understanding. Explanatory interpretation is contextual, is "horizontal." It must be made within a horizon of already granted meanings and intentions. In hermeneutics, this is called pre-understanding (Palmer, 1969).

Translation is a special form of "bringing to understanding," of interpretation. It takes language from one field and makes it intelligible to another. The act of translation cannot be simply that of synonym-finding, but it must be one of mediating between two different worlds. As a repository of cultural experience, language shapes a concept of reality (Palmer, 1969; Ricoeur, 1976; Winthrop, 1972).

The three meanings of hermeneuein give a further explanation of hermeneutical methodology for explicating texts. In "saying aloud," a writer will monitor his thinking processes so as to determine bias which would influence the interpretation of work. Sherwood and

Nataupsky's (1968) research indicates the background of the researcher influences the results of his/her research. In explaining the text, a writer will look for contexts and assumptions. When translating from one field to another, a writer will include the concept of reality assumed by respective fields. This process has been termed the "Circle of Hermeneutics" (Hernadi, 1972; Gauld & Shotter, 1977; Palmer, 1969; Ricoeur, 1976).

The "Circle of Hermeneutics" asks that the researcher shift attention back and forth between parts and the whole of the research. The task of hermeneutics becomes the clarification of the word through the development of its meaning internally and the relationship of its inner parts to each other and to the larger whole. For the interpreter to explain the text to another, s/he must understand it. To understand it, s/he must preunderstand the subject and the situation before s/he can enter the horizon of its meaning. Only when s/he can enter the circle of its horizon can the interpreter understand its meaning. It sounds like a contradiction in that for a text to be understood, the condition for its understanding is already to have understood what it is about. The contradiction is resolved by a dialectical process. A partial understanding is used to understand still further, like using pieces of a puzzle to figure out what is missing. "A certain pre-understanding of the subject is necessary or no communication will happen, yet that understanding must be altered in the act of understanding" (Palmer, 1969, p. 25). This seeming contradiction is termed the "hermeneutical circle."

The understanding that is arrived at through the hermeneutical circle requires not only that the interpreter look at the text from a centering position, but also become involved in interaction with the text. Palmer explains

> What is needed in literary interpretation (six. text) is a dialetical questioning which does not simply interrogate the text but allows the things said in the text to interrogate back, to call the interpreter's own horizon into question and to work a fundamental transformation of one's understanding of the subject. This does not mean a denial of the interpretor's horizon, nor does it mean making one's own horizon aboslute, as is implicit in most analysis and method; it means a creative fusion or horizons. . . . The dialetical approach of Scorates may serve as a model for all truly dialectical questioning, for in his vacillation between knowing and not knowing, in the playful probing or the subject from different anbles, lies the willingness to risk everything and to be instructed by the subject matter itself (Palmer, 1969, p. 234)

This dialectical approach will help solve the contradiction spoken of in the "Hermeneutical Circle." A visual representation of the "Circle of Hermeneutics" is found in Figure 1:

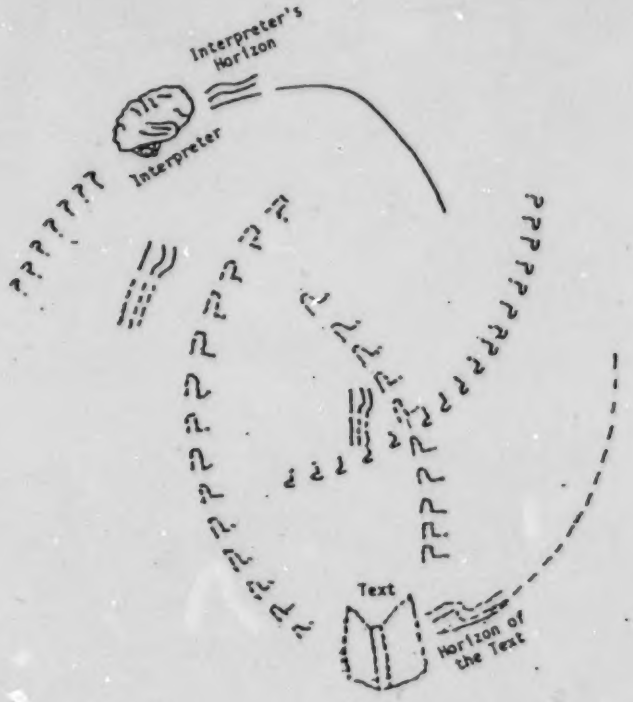


Figure 1

Circle of Hermeneutics

Figure shows the merging of horizons which occurs through the dialectical questioning process. The dashed line indicates the questioning posited by the text; the solid line that of the interpreter. The ≈≈ is the Native American symbol for horizon. (Bockert, 1980, p. 9).

The use of Hermeneutical methodology allowd the researcher to translate research from medical fields for the use of educators. Medical and psychological research has direct implications for elementary and secondary education.

SOURCES CONSULTED

Adrian, Edgar Douglas. The mechanism of nervous action; electrical studies of the neuron. Philadelphia: University of Pennsylvania Press, 1932.

Agnew, M. The auditory imagery of great composers. Psychological Monographs, 1922, 31, 279-287.

Ambrose, Natalie. Visualization, a prime factor of problem solving. International visual literacy association 1979 yearbook (in print).

Arnot, P. & Monroe, E. Run for your life. San Carlos, CA: Wide World, Inc., 1977.

Bakan, P. The eyes have it. Psychology today, 1971, 4, 64-69.

_____ Hypnotizability, laterality of eye movements and functional brain asymmetry. Perceptual and motor skills, 1969, 28, 927-932.

Bancroft, W. Jane. The Lozanov method and its American adaptations. Journal of S.A.L.T., 1976, 1(3).

Barranger, Jack. Using visual literacy to increase competence and understanding in english and the social sciences. International visual literacy association 1979 yearbook (in print).

Bever, T. G. Cerebral asymmetries in humans are due to the differentiation of two incompatible processes: holistic and analytic. Annals of the New York academy of sciences, 1975, 263, 251-262.

Blakemore, Colin. Mechanics of the mind. Cambridge: Cambridge University Press, 1977.

Bockert, L. Susan. A study of the synergism from Hemispheric predominance and its applications for elementary and secondary education. Ph.D. Dissertation University of Pittsburgh, 1980. University Microfilms.

Bodem, Marguerite M. The role of fantasy in children's reading. Elementary English, 1975, 52(4), 470-471, 538.

Bogen, Joseph E. Educational aspects of hemispheric specialization. International visual literacy association 1979 yearbook (in print).

_____. The other side of the brain I: dysgraphia and dyscopia following cerebra; commissurotomy. Bulletin of the Los Angeles neurological societies, 1969a, 34(2), 73-105.

Bogen, Joseph E. The other side of the brain II: An appositional mind. Bulletin of the Los Angeles neurological societies, 1969b, 34(2), 135-162.

_____ & Bogen, Glenda M. The other side of the brain III: The corpus callosum and creativity. Bulletin of the Los Angeles neurological societies, 1969, 34(2), 191-220.

Bonny, Helen L. & Savary, Louis M. Music and your mind. New York: Harper & Row, Publishers, 1973.

Brown, Barbara. Biological awareness as a state of consciousness. In Barber, T., et al (Eds.), Biofeedback and self-control. Chicago: Aldine Publishing Company, 1976.

Brown, Raymond E. Hermeneutics. In Brown, R. E. et al (Eds.), The Jerome Biblical commentary. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1968.

Bruner, Jerome S. On knowing essays for the left hand. New York: Atheneum, 1976.

Bry, Adelaide. Directing the movies of your mind. New York: Harper & Row, 1978.

Day, M. An eye-movement phenomenon relating to attention, thought, and anxiety. Perceptual and motor skills, 1964, 19, 443-446

Dimond, Start J. & Beaumont, J. G. (Eds.) Hemispheric function in the Human Brain. New York: Halsted Press, 1974.

Budzynski, Thomas. Biofeedback and the twilight states of consciousness. In Goleman, D. & Davidson, R. J. (Eds.), Consciousness: Brain states of awareness and mysticism. New York: Harper & Row, 1979.

_____. Some applications of biofeedback produced twilight states. Fields within fields, 1972, 5, 105-114.

_____ & Stoyva, Johann. Biofeedback techniques in behavior therapy. In Barter, T. et al (Eds.) Biofeedback and self-control. Chicago: Aldine Publishing Company, 1976.

Buzan, Tony. Use both sides of your brain. New York: E. P. Dutton, 1976

Carpenter, Charles C. Ritualistic social behavior in lizards. In Greenberg, N. & MacLean, P. D. (Eds.), Behavior and neurology of lizards an interdisciplinary colloquium. Rockville, Maryland: National Institute of Mental Health, 1978, 253-267.

Cowan, W. Maxwell. The development of the brain. Scientific American, 1979, 241, 112-13.

Cutting, J. A parallel between degree of encodedness and the ear advantage: Evidence from an ear-monitoring task. Journal of the accoustical society of America, 1972, 53.

Edwards, Betty. Drawing on the right side of the brain. Los Angeles: J. P. Tarcher, Inc., 1979

Galin, David. Implications for psychiatry of hemispheric specialization. Archives of general psychiatry, 1974, 71, 572-583.

_____. Lateral specialization and psychiatric issues: Speculations on development and the evolution of consciousness. Annals New York academy of sciences, 1977, 299.

Gardiner, Martin F. & Walter, Donald O. Evidence of hemispheric specialization from infant EEG. In Harnad, S. et al (Eds.), Lateralization in the nervous system. New York: Academic Press, Inc., 1977.

Gauld, Alan &Shotter, John. Human action and its psychological investigation. London: Routledge and Kegan Paul, 1977.

Gazzaniga, M. S. Biology of memory. In Rosensweig, M. & Bonnet, M. (Eds.) Neuroscience: A review. Cambridge: MIT Press, 1976.

_____. Consistency and diversity in brain organization. Annals New York academy of science, 1977a, 299.

_____. Handbook of psychobiology. New York: Academic Press, 1975a.

_____. Review of the split brain. In Wittrock, M. C. (Ed.), The human brain. Englewood Cliffs, New Jersey: Prentice-Hall, 1977b

_____ & LeDoux, J. E. The integrated mind. New York: Plenum Press, 1978.

Geschwind, Norman. The anatomical basis of hemispheric differentiation. In Dimond, S. J. & Beaumont, J. G. (Eds.), Hemispheric function in the human brain. New York: Halstead Press, 1974, 7-24

Ghiselin, B. (Ed.), The creative process. New York: Mentor, 1952.

Goldman, Patricia S. Maturation of the mammalian nervous system and the ontogeny of behavior. In Rosenblatt, J. S. et al (Eds.), Advances in the study of behavior. New York: Academic Press, 1976, 2-72

Greenough, William T. & Juraska, Janice M. Synaptic purning. Psychology today, July, 1969.

Gruber, H. E. Darwin's "Tree of Nature" and other images of wide scope. In Wechsler, J. (Ed.), On aesthetics in science. Cambridge: MIT Press, 1978, 121-140.

Gur, Raquel & Gur, Ruben. Correlates of conjugate lateral eye movements in man. In Harnad, S. et al (Eds.), Lateralization in the nervous system. New Yrok: Academic Press, Inc., 1977, 261-285.

Hadamard, J. The psychology of invention in the mathematical field. Princeton: Princeton University Press, 1945.

Hammer, M. & Turkewitz, G. Relationship between effective intensity of auditory stimulation and directional eye turns in the human newborn. Animal behavior, 1975, 23, 287-290.

Harnad, S., Doty, R. W., Goldstein, L., Jaynes, J. & Krauthamer, G. (Eds.), Lateralization in the nervous system. New York: Academic Press, Inc., 1977.

Hendricks, Gay &Wills, Russel. The centering book. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975.

_____ & Roberts, Thomas B. The second centering book. Englewood Cliffs, New Jersey: Prentice-Hall, 1977.

Hernadi, Paul. Beyond genre. Ithaca: Cornell University Press, 1972.

Hirst, W., Neisser, U. & Spelke, E. Divided attention. Human nature, June, 1978.

Hodgson, Edward. The evolutionary origin of the brain. Annals New York academy of science, 1977, 299.

Jerison, Harry J. Evolution of the brain. In Wittrock, M. C. (Ed.), The human brain. Englewood Cliffs, New Jersey: Prentice-Hall, 1977.

Jollie, Malcolm. The origin of the vertebrate brain. Annals New York academy of science, 1977, 299.

Jung, C. G. Psyche & symbol. New York: Anchor Books, 1958.

Kahn, G. Tape made from graduate classes from the Silva Mind Control International, Inc., Laredo, Texas, 1979.

Kandel, Eric R. Small systems of neurons. Scientific American, 1979, 241.

Khatena, J. Imagination imagery of children and the production of analogy. Gifted child quarterly, 1975b, 19, 310-315.

Kinsbourne, Marcel (Ed.). Asymmetrical function of the brain. London: Cambridge University Press, 1978.

_____. The control of attention by interaction between the cerebral hemispheres. In Kornbluem,J. (Ed.), Attention and performance. New York: Academic Press, 1973.

_____. Direction of gaze and distribution of cerebral thought processes. Neuropsychologia, 1974, 12, 279-281.

Kocel, K. Galin, D., Lrnstein, R. & Merrin, E. Lateral eye movement and cognitive mode. Psychonomic science, 1972, 27, 223-224.

Krashen, Stephen D. The left hemisphere. In Wittrock, M. C. (Ed.), The human brain. Englewood Cliffs: Prentice-Hall, 1977.

Leonard, G. The ultimate athlete. New York: Avon Books, 1977.

Levy, J. The mammalian brain and the adaptive advantage of cerebral asymmetry. Annals New York academy of science, 1977, 299.

_____. The origins of lateral asymmetry. In Harnad, S. et al (Eds.), Lateralization in the nervous system. New York: Academic Press, Inc., 1977, 195-213

_____, Agresti, J. &Sperry, R. W. Differential Perceptual Capacities in major and minor hemispheres. Proceedings national academy of science, 1968, 61.

Linn, Dennis & Linn, Matthew. Healing life's hurts. New York: Paulist Press, 1977.

_____. Healing of memories. New York: Paulist Press, 1977.

Lozanov, Georgi. Suggestology and outlines of suggestopedy. New York: Gordon and Breach, 1978.

Lund, Martin. Inner skier: A new way of learning. Ski, 1975, 40(3).

MacLean, Paul D. A triune concept of the brain and behavior. Toronto: University of Toronto Press, 1973.

_____. Why brain research on lizards. In Greenberg, N. & MacLean, P. D. (Eds.), Behavior and neurology of lizards an interdisciplinary colloquium. Rockville, Maryland: National Institute of Mental Health, 1978.

McKim, Robert. Experiences in visual thinking. International visual literacy association 1979 yearbook (in print).

_____. Experiences in visual thinking. Monterey, California: Brooks/Cole Publishing Company, 1972.

McLaughlin, James T. A reconsideration of primary and secondary process in the context of cerebral hemispheric lateralization and specialization. Paper presented at the Pittsburgh Psychoanalytic Society Scientific Conference on September 24, 1977.

Miller, A. I. Visualization lost and regained: The genesis of the quantum theory in the period 1913-27. In Wechsler, J. (Ed.), On aesthetics in science. Cambridge: MIT Press, 1978.

Nebes, R. Dominance of the minor hemisphere in commissurotomized man on a test of figural unification. Brain, 1972, 95, 633-638.

_____. Man's so-called minor hemisphere. In Wittrock, M. C. (Ed.), The human brain. Englewood Cliffs: Prentice-Hall, 1977.

O'Connor, Daniel & Jimenez, Jacques. The images of Jesus. Minneapolis: Winston Press, 1977.

Oppenheimer, Jane M. Studies of brain asymmetry: Historical perspective. Annals New York academy of sciences, 1977, 299.

Ornstein, R. Lateral specialization in normals. Annals New York academy of sciences, 1976.

_____. The Psychology of Consciousness. New York: Pelican Books, 1975.

Ostrander, Sheila & Schroeder, Lynn. Super-Learning. New York: Delacorte Press/Confucian Press, 1979.

Palmer, Richard E. Hermeneutics. Evanston: Northwestern University Press, 1969.

Pearce, Joseph Chilton. Magical child. New York: E. P. Dutton, 1977.

Pressley, G. Michael. Mental imagery helps eight-year-olds remember what they read. Paper presented at the Annual meeting of the American educational research association, 1976. ERIC ED-123-595.

Pribram, Karl H. Hemispheric specialization: Evolution or revolution. Annals New York academy of science, 1977, 299.

_____. Languages of the brain. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971.

Progoff, Ira. At a journal workshop. New York: Dialogue House Library, 1975.

Regal, Philip J. Behavioral differences between reptiles and mammals: An analysis of activity and mental capabilities. In Greenberg, N. & MacLean, P. D. (Eds.), Behavior and neurology of lizards an interdisciplinary colloquium. Rockville, Maryland: National Institute of Mental Health, 1978, 183-202.

Regelski, Thomas A. Arts education and brain research. Reston, Virginia: Music Educators National Conference, 1978.

Restak, Richard M. The brain: The last frontier. Garden City: Doubleday & Company, Inc., 1979.

Richards, Mary Carolyn. Centering in poetry, pottery and the person. Middletown, Conn.: Wesleyan University Press, 1964.

Ricoeur, Paul. Interpretation theory: Discourse and the surplus of meaning. Fort Worth, Texas: The Texas Christian University Press, 1976.

Rose, Steven. The conscious brain. New York: Alfred A. Knopf, 1973.

Rosenzweig, M. R. & Bennett, E. L. Neural mechanisms of learning and memory. Cambridge: MIT Press, 1976.

Sagan, Carl. The dragons of eden. New York: Random House, 1977.

Samples, Bob. The metaphoric mind. Reading, Massachusetts: Addison= Wesley Publishing Company, 1976.

_____. Toward a synergy of mind: Psychological premises for education before 1984. Essentia, The Evergreen State College, Olympia, Washington, 1974.

Seashore, C. E. Psychology of music. New York: Dover Press, 1967.

Selye, Hans. The stress of life. New York: McGraw-Hill Book Company, 1978.

Shepard, R. N. Externalization of mental images and the act of creation. In Randhawa, B. S. & Coffman, W. E. (Eds.), Visual learning, thinking and communication. New York: Academic Press, 1978, 133-189.

Sherwood, John J. Nataupsky, Mark. Predicting the conclusion of Negro-White intelligence research from biographical characteristics of the investigator. Journal of personality and social psychology, 1968, 8.

Silva, Jose. Effective sensory projection, applied effective sensory projection. Laredo, Texas: Silva Mind Control International, 1977a.

_____. Controlled relaxation. Laredo, Texas: Silva Mind Control International, 1977b.

_____. General self-improvement. Laredo, Texas: Silva Mind Control International, 1977c.

_____. Psychic healing research. Faith healing in the worldwide holistic movement. Laredo, Texas: Silva Mind Control International, 1978.

_____ & Miele, Philip. The Silva Mind Control Method. New York: Pocket Books, 1977d.

Sperry, R. W. Hemisphere deconnection and unit-conscious awareness. American psychologist, 1968, 23.

_____. Left-brain, right-brain. In Rosenfeld, A. (Ed.), Mind & supermind. New York: Holt Rinehart, 1977.

Stocker, Elizabeth. Left &right brain learning audio/visual code. English version. San Diego, California: Integrated Brain Publishing Company, 1979.

Teilhard de Chardin, Pierre. The phenomenon of man. New York: Harper & Row, 1965.

Thera, N. The heart of Buddhist meditation. New York: Samuel Weiser, 1973.

Turkewitz, Gerald. The development of lateral differentiation in the human infant. Annals New York academy of science, 1977, 299.

_____. The development of lateral differences in the human infant. In Harnad, S. et al (Eds.), Lateralization in the nervous system. New York: Academic Press, Inc., 1977, 251-261.

Van Lancker, D. & Fromkin, V. Tone and pitch perception. Journal of phonetics, 1973, 1, 101-109.

Velley, L. & Cardo, B. Long-term improvement of learning after early electrical stimulation of some central nervous structures: Is the effect structure and age-dependent? Brain research bulletin, 1979, 4, 459-466.

Wada, John A. Pre-language and fundamental asymmetry of the infant brain. Annals New York academy of science, 1977, 299.

Walkup, L. E. Creativity in science through visualization. Perceptual and motor skills, 1965, 21, 35-41

Webster's new 20th century dictionary. Published in U.S.A. by William Collins and World Publishing Company, 1976.

Winthrop, Henry. Meaningful correlation as a form of intellectual inquiry. Wichita, Kansas: University of Witchita, 1957.

Witelson, Sandra. Anatomic asymmetry in the temporal lobes: Its documentation, phylogenesis and relationship to functional asymmetry. Annals New York academy of Science, 1977, 299.

Wittrock, M. C. The generative process of memory. In Wittrock, M. C. (Ed.)., The human brain. Englewood Cliffs: Prentice-Hall, 1977.

Wolff, Peter H. The development of manual asymmetries in motor sequencing skills. Annals New York academy of sciences, 1977, 299.

AN ETHNOGRAPHIC ACCOUNT OF THE COOPERATING/STUDENT TEACHER RELATIONSHIP

By

Fred DiNapoli

Elementary Education

University of Pittsburgh

INTRODUCTION

This paper contains a report of an ethnographic study on cooperating/student teacher interaction in which data is currently being analyzed. The report consists of two sections. First, the background of this study is briefly described in terms of its purpose, rationale and research methods. Second, the cooperating teacher's agenda for pupil control is presented as one example of the professional knowledge transmitted to student teachers. Before this study can be completed, further analysis of cooperating/student teacher interaction is needed to determine the forms of communication that are used for transmitting the pupil control agenda.

BACKGROUND OF THE STUDY

Student teaching is regarded as one of the most valuable training experiences in teacher education (Peck and Tucker, 1973; Doyle, 1977), because it is in the field that the prospective teacher can try out a good deal of what has only been theorized up to this point (Amidon and Hunter, 1966). A review of recent research on student teaching has indicated an interest in the social and cultural processes that transform a person into a classroom teacher (Iannaccone, 1964; Lortie, 1965; Hoy, 1969; Eddy, 1969; Doyle, 1977). According to Wolcott (1973), the basic assumption of this research is that "schools like other cultural systems, are perpetuated through the process of socializing new members into the statuses which must be occupied" (p. 192).

From a sociocultural perspective, some researchers have identified student teaching as a process of cultural transmission in which the traditions, beliefs and customs of the school are communicated to prospective teachers. Eddy (1969) wrote that student teaching is a time when local educational folklore and traditions are transmitted from one generation of teachers to the next.

Iannaccone (1964) suggested that as a period of cultural transmission, student teaching provides two functions. From the view of the experienced teacher subculture, student teaching has the function of transmitting the norms of that subculture to the student teacher. From the view of the student teacher, Iannaccone saw this semester as "having the function of providing an occasion for acquiring teacher norms and of reducing anxiety concerning teaching." (p. 16)

Since the cooperating teacher performs a major role in the transmission of professional knowledge, it is probably not surprising that a great deal of research has been done on the cooperating/student teacher relationship. To a large extent, this research has dealt with the outcomes of cooperating teacher influence on student teacher performance and growth. For example, McAuley (1960) observed teaching methods, classroom housekeeping procedures and relationships with children as areas where student teachers visibly emulate their cooperating teachers. Price's (1961) follow-up study confirmed that cooperating teachers do influence their student teachers' attitudes and behaviors. In addition, Peck and Tucker (1974) reviewed nine studies which supported the hypothesis that the flow of influence is from the cooperating teacher to the student teacher.

Accepting that cooperating teachers influence changes in student teacher performance and growth, a number of researchers have investigated variables operating within the cooperating/student teacher relationship that may affect these changes. Fritchard (1974) said "if such variables can be identified and manipulated, the outcomes of the student teaching experience can be

controlled" (p. 1). Some of the researchers have focused upon intrapersonal variables such as the attitudes (Osman, 1959; Sanford, 1960; Yee, 1960; Underhill, 1969), personality traits (Hill, 1969; Davis, 1970) and verbal behavior (Flint, 1965; McLeod, 1967) of cooperating and student teachers, while others have presented convincing cases for the importance of demographic variables (Leslie, 1969; Fuhrmann, 1971) such as age, sex, race and social status.

Previous research on student teaching affirms that changes take place in student teachers' attitudes and behaviors and that cooperating teachers have a direct influence on these changes. However, not much is known about how cooperating teachers influence these changes during interaction with student teachers. For example, what strategies do cooperating teachers use to influence student teachers? Are student teachers' attitudes and behavior related to the frequency of interaction, the number of times a student teacher interacts with a cooperating teacher? What aspects of interaction facilitate or hinder this influence process? To what extent do student teachers have a reciprocal influence on cooperating teachers' attitudes and behaviors?

A number of reasons may be cited for the paucity of research on interactive processes between cooperating and student teachers. Parsons (1968) viewed social interaction as a difficult area to study because the subject matter was so close to immediate experience. Simon and Boyer (1974) observed that until the past decade few data-gathering tools have been available for the study of dynamic, on-going interaction been people. Argyle (1969) explained that for several years very little was known about interaction because there were no concepts for describing or methods for studying this complex process. According to Argyle, the first step towards an understanding

of interaction is to develop a working picture of what is going on in social situations.

Following Argyle's advice, this study will provide a description of what is going on between cooperating and student teachers during interaction. This description can make the following contributions to research on student teaching:

1. Serve as a basis for generating hypotheses about cooperating/student teacher interaction.
2. Increase our current understanding of the ways cooperating teachers influence student teacher attitudes and behaviors.
3. Provide pre-service teachers with a set of realistic expectations about student teaching and their future relationships with cooperating teacher.
4. Clarify the cooperating teacher's role as transmitter of professional knowledge.

Ethnography was used as the research methodology for gathering data on cooperating and student teachers. In addition, a model of cultural transmission suggested the organizer for classifying and presenting data. The remainder of this section contains a more detailed discussion of the methods and analytical model used to study cooperating/student teacher interaction.

Ethnography was chosen as the research methodology in this study for three reasons. First, ethnography had a descriptive approach. Spradley and McCurdy (1972) defined ethnography as the task of describing a particular culture. In their definition, the term culture refers to the knowledge that people use to interpret and generate social behavior (p. 8). Therefore, the use of ethnographic methods would make it possible to describe the cultural knowledge that cooperating and student teachers use in their daily encounters with each other.

Along with its descriptive approach, ethnography also allowed for exploration and discovery. One goal of ethnography is to develop hypotheses based upon first-hand knowledge about empirical social world in questions. Rist (1977) identified this method of developing knowledge and understanding as inductive analysis. The ethnographer begins with tentative assumptions which help to organize observations of the phenomena being studied. Lutz and Ramsey (1974) viewed these assumptions as guides for the ethnographer "who is not wed to them or predisposed to prove them. They explicate relationships that might exist and thus direct first efforts at data collection in the field. As data are gathered these assumptions are refined, conditions of verification and exceptions are noted, checked, rechecked, and the statements refined to correspond with the empirical fact" (p. 5). The ethnographer's hypotheses are thus evolved from observed, recorded, first-hand information.

Third, ethnography was chosen because it provided a wide range of data-gathering methods such as participant and non-participant observation, taking field notes, recording and in-depth interviewing. Filstead (1970) said these methods are useful when studying social interaction because they help the researcher "get close to the data, thereby developing the analytical, conceptual and categorical components of explanation from the data itself." (p. 6) Also, by using these methods, the ethnographer selectively records certain aspects of interaction that cannot be subjected to measurement by paper and pencil tests or behaviorally defined coding systems. For example, facial expressions, tone of voice, degree of rapport, tension and relaxation might be some aspects of interaction examined in an ethnographic study.

Gearing's interpsychic model of cultural transmission (1974) was used to organize and present the data collected on cooperating and student teachers.

A description of the model begins with Gearing's definition of a cultural system as an array of diverse but interlocking equivalences of meaning which are variously transacted in the recurrent encounters of group members. Cultural transmission consists of such "transactions of equivalence in certain encounters" (Gearing, 1974: 1).

Equivalence and transaction are the two key ideas in Gearing's definition of cultural transmission. Equivalence suggests that two parties in any encounter bring to that encounter their cognitively mapped prior experiences. Cognitive maps include concepts, rules and plans that guide behavior during interaction. According to Gearing, equivalences of meaning are shared in four analytical realms: setting, world view, social identity and agenda. Setting refers to the ways people categorize and attach meanings to situations. World view is a person's sense of the nature of the world, human and non-human. Social identity relates to the person's mapping of positions in the cultural system. This mapping includes a description of the various roles and role relationships. Finally, agenda is the person's expectations of how the encounter promises or threatens to unfold. Agenda involves the positioning of the self in the course of the encounter.

Transaction is the process by which equivalences of meaning change in kind and direction. Through various forms of communication, people transact or negotiate equivalences of meaning. Recurrent transactions may lead to the exchange of one boundary for another, or the creation of boundaries previously non-existent, or the elaboration of existing boundaries (Roberts, 1976: 12). The notion of transaction focuses attention on the forms of communication, the kind of cognitive change and the direction of that change.

Based upon Gearing's model, an important step in understanding what occurs between cooperating and student teachers during interaction is to describe the contents of their cognitive maps. This description serves as a basis for probing deeper into the underlying patterns of interaction. For instance, the cooperating and student teachers' agendas might be compared to identify similarities and differences of perceptions. In addition, interactions in which these agendas were being exchanged could be examined to determine the forms of communication used, the kinds of changes occurring in these agendas, and the direction of these changes (i.e., convergence or divergence.)

Gearing's model of cultural transmission was chosen because of its usefulness in serving as an outline for classifying, interpreting and presenting data. This outline was divided into two categories. The first category inquired into the contents of cognitive maps and the various degrees and kinds of fit and ill-fit between them. The second category examined the transmission and changes of these cognitive maps.

Outline for Studying Cooperating/Student Teacher Interaction

1. Content and Comparison of Cognitive Maps
    a. What is the content of the cooperating and student teacher's cognitive maps?
        1. Setting
        2. World View
        3. Social Identity
        4. Agenda
    b. What are the similarities and differences in these cognitive maps?
2. Transmission and Changes of Cognitive Maps
    a. What are some of the ways cooperating and student teachers transmit their cognitive maps?
        1. Forms of Communication

a. verbal
b. non-verbal

2. Content of Communication
   a. How does the transmission of these cognitive maps affect each other's performance?
   b. What changes have occurred in these cognitive maps?
   c. What are the direction of these changes?

PRESENTATION OF DATA

In this section, the cooperating teacher's agenda for pupil control is presented as one example of the professional knowledge transmitted to student teachers. The contents of this agenda are analyzed according to a set of expectations for student teachers and assumptions about teacher-pupil interaction.

Cooperating teachers expected their student teachers to have control of pupils. Having control meant "getting the pupils to do what the teacher wanted them to do." Cooperating teachers emphasized the importance of having pupil control by making comments to student teachers like "you got to show the pupils who is boss" and "don't be afraid to exert your authority with pupils." Cooperating teachers also used pupil control as a criterion for evaluating the instructional performance of student teachers.

At an implicit level, the cooperating teacher's agenda contained two expectations which specified the conditions for having control of pupils. Student teachers were first of all expected to enforce the cooperating teacher's rules for pupil behavior. Secondly, student teachers were expected to use strategies that were consistent with the cooperating teacher's strategies.

The cooperating teacher's expectations for student teachers were derived from three assumptions about teacher-pupil interaction. These assumptions

formed the basis for categorizing cultural knowledge. First, it was assumed that teachers constructed norms for pupil behavior. These norms were communicated to pupils in the form of rules that must be followed. When asked about the importance of rules an eighth grade cooperating teacher replied, "Children do not know what is acceptable and non-acceptable and need an adult to teach this to them."

For cooperating teachers rules regulated a wide range of pupil behavior that included academic, physical and social conduct. In addition, rules for pupils were usually organized according to various school settings. For example, there were rules for pupils to follow in the classroom, playground, cafeteria and halls. Figure 1 contains some of the rules that cooperating teachers expected pupils to obey in the classroom.

Figure 1

Taxonomy of Classroom Rules for Pupils

Enter classroom quietly
- Walk into classroom
- Get into seat immediately
- Find something to do until class begins
- Keep voices down

Have books and pencils ready for class
Participate in class
Complete assignments on time
Find something to do when finished with assignment
Be polite to other pupils
Put materials back where they were found
Keep desks neat and tidy

Raise hand for permission to
- Talk
- Be excused
- Sharpen pencil
- Throw something away

Sit properly
- Sit up
- Sit quietly
- Be still

Taxonomy of Rules for Pupils (cont.)

- Pay attention
  - Listen carefully
  - Follow directions
  - Look at the chalkboard
  - Watch the teacher
- Leave classroom quietly
  - Line up quietly
  - Stay in line on the way out
  - Walk
    - in the halls
    - up or down steps

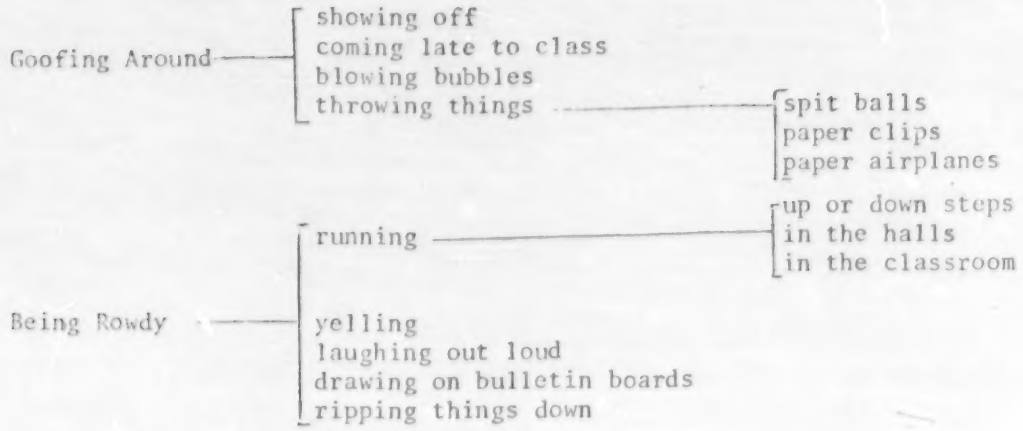
The second assumption about teacher-pupil interaction was that when pupils disobeyed rules, they behaved in ways that were inconsistent with the teacher's expectations. Such pupil behavior was considered disruptive and subjected to the teachers' sanctions. The taxonomy in Figure 2 lists the kinds of pupil behavior that cooperating teachers considered disruptive.

Figure 2

Taxonomy of Kinds of Disruptive Pupil Behavior

- Making Noise
  - talking
    - jabbering
    - speaking out of turn
    - interrupting
    - conversing with another
  - making animal noises
  - whistling
  - humming
  - farting
  - cracking gum
  - making noise with chair
  - dropping things on floor
  - singing
  - shuffling feet
  - tapping pencil on desk
- Bothering Other Pupils
  - arguing
  - fighting
  - pushing
  - shoving
  - chasing
  - hitting
  - taking things
  - name calling
- Fussing
  - scribbling
  - squirming in seat
  - chewing gum
  - combing hair
  - getting out of seat
  - having playthings

Taxonomy of Kinds of Disruptive Behavior (cont.)

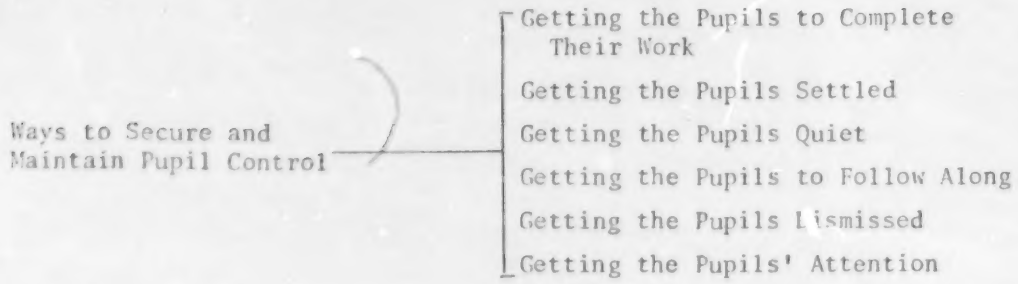


The third assumption about teacher-pupil interaction referred to a set of cognitive strategies that teachers used to secure and maintain control. For example, upon entering the classroom pupils were usually expected to find their seats, get quiet and begin to work on a certain task. Whenever pupils entered the classroom and goofed around instead of doing what was expected, teachers responded with a set of strategies for getting pupils settled.

Getting control had a variety of meanings for cooperating teachers depending upon the types of situations which included teacher-pupil interaction. For example, during instructional time, cooperating teachers thought of ways to get pupils sitting quietly, paying attention, following along and completing classwork. On the other hand, at the beginning and end of class time, cooperating teachers were concerned with settling or dismissing pupils in an orderly manner. Although the domain of pupil control included several categories (Figure 3), only one of the categories was examined closely in this paper. The selected category was "getting the pupils quiet."

Figure 3

Ways to Secure and Maintain Pupil Control


Ways to Secure and Maintain Pupil Control
Getting the Pupils to Complete Their Work
Getting the Pupils Settled
Getting the Pupils Quiet
Getting the Pupils to Follow Along
Getting the Pupils Dismissed
Getting the Pupils' Attention

Cooperating teachers expected pupils to become quiet at certain times during the school day. Although these quiet times varied among cooperating teachers, they all usually expected quiet whenever they were speaking. For example, pupils were expected to be quiet whenever the cooperating teacher was talking with a parent, university supervisor, or any visitor to the classroom. In addition, pupils were expected to get quiet during certain parts of a lesson when the cooperating teacher was speaking.

Getting the pupils quiet did not mean establishing absolute silence. There was a certain degree of noise that most cooperating teachers tolerated. However, particular kinds of noisy pupil behavior occurred throughout the school day which were not tolerated. If such behavior occurred while cooperating teachers were speaking, they usually relied on a set of techniques for getting the pupils quiet. (Figure 4)

Figure 4

Taxonomy of Ways to Get Pupils Quiet

Taxonomy of Ways to Get Pupils Quiet (cont.)

- USING PUNISHMENT
  - contacting parent(s)
    - sending misconduct note home to parents
    - calling parents on the phone
  - sending pupil to principals office
  - sending pupil to guidance counselor
  - taking away a privilege
  - getting the pupil suspended
  - tearing up the pupil's paper
- USING REWARDS
  - promising a reward
    - to go outside
    - to play a game
  - cutting pupils a break
    - cancelling homework
    - lightening up a lesson
    - letting pupils play
    - putting off a test
  - giving out pupil of the day award
  - using a point system
  - giving out stars, candy, pencils, etc.
  - praising a pupil for good behavior
  - giving pupils a job
  - calling on pupils who are quiet
  - contacting the parents
  - being kind to pupils who are quiet
- USING GIMMICKS
  - making up a pretend situation
  - diverting pupil attention
  - putting up a quiet sign
  - ringing a bell
  - turning off the lights
  - slamming a book or yardstick on desk
  - calling on pupil unexpectedly
  - writing pupils names on chalkboard
  - making pupils put their heads down
  - standing on a desk
  - whispering
  - challenging pupils to be quiet
  - slamming the door
  - doing something unexpectedly
  - changing tone of voice

Taxonomy of Ways to Get Pupils Quiet (cont.)

- USING BODY LANGUAGE
  - walking around
    - with arms folded
    - holding a yardstick
  - ignoring pupil behavior
  - indicating shhh with index finger
  - using laser glare stare
  - standing and waiting for quiet
  - stopping and waiting for quiet
  - snapping fingers
  - standing with hands on hips
  - hugging a pupil
- USING PREVENTIVE METHODS
  - being prepared
    - having materials ready
    - knowing the content
  - promising a test
  - giving pupils busywork
  - taking things away from pupils
  - putting chairs on the floor before pupils arrive
  - changing pupils' seats
  - isolating a pupil from others
  - telling pupils what to do whenever they get finished with the assignment
  - having pupils sharpen pencils before beginning
  - separating pupils
  - not starting until pupils are quiet
  - writing directions for pupils work on chalkboard
  - giving pupils a list of rules
  - making pupils take everything off their desks
  - making a pupil sit beside the teacher

One of the patterns gleaned in relation to the content of professional knowledge was the student teacher's attitude change from resistance to acceptance of pupil control. Student teachers initially disagreed with the cooperating teacher's assumptions about classroom rules, disruptive behavior and strategies for getting control. They felt that the cooperating teacher's rules placed too many constraints upon pupils. According to student teachers, such an emphasis upon quiet and orderly behavior hindered pupil motivation for learning.

In relation to the cooperating teachers' assumption about disruptive behavior, student teachers contended that pupils wouldn't disobey rules and disrupt lessons if they were interested and involved. One way student teachers attempted to secure pupil interest and involvement was through activities. Figure 5 includes examples of the activities student teachers designed and used with pupils during a lesson.

Figure 5

Taxonomy of Kinds of Activities

- Having a shaving experience with pupils
- Singing a song with pupils
- Having pupils dance
- Letting pupils go to the board
  - Chalkboard
  - Felt board
- Letting pupils go to centers
  - Listening to tapes
  - Making things
- Playing a game with pupils
  - Spelling bee
  - Flash cards
- Assigning Seatwork
  - Drawing
  - Coloring
  - Cutting and pasting
  - Completing worksheets
  - Completing a workbook page

Student teachers acknowledged that activities generated a certain amount of pupil noise and movement. According to student teachers, noise and movement were acceptable if pupils were interested and actively involved in the lesson. The following was a third grade student teacher's rationale for getting pupils involved in activities:

> "...I get them involved in activities. It does create a certain amount of disorder but at the same time I feel they need a chance to express themselves and even though its a little noisy and it takes a few minutes to quiet them down I feel like their getting a chance to say what they've done and it makes it worth it. I think its important for kids to have a chance to talk in the classroom too." (Interview with Patti, 9-29-78)

In addition to rules and disruptive behavior, student teachers also resisted efforts to use the cooperating teachers' strategies for securing and maintaining control. One reason for this resistance was that student teachers considered some of these control strategies as too harsh for children. For example, during an orientation meeting with the college supervisor, four elementary school student teachers were discussing their placements. One student teacher said she hoped that her cooperating teacher wasn't the type that screamed and yelled at the pupils. The other student teachers agreed they would never resort to the use of such harsh methods.

At the beginning of the semester student teachers were also uncertain about their role expectations and therefore hesitated using the cooperating teachers' strategies. During an interview the first week of student teaching, a third grade student teacher explained why she was hesitant in controlling pupils:

> "I'm always wondering what to do whenever the kids are misbehaving. I wonder if it is my place to reprimand the students. It's sort of like a Catch-22. If you reprimand the students you're accused of stepping on the cooperating teachers toes....trying to take over. If you don't do anything your accused of being too lenient...not having control of the kids." (Interview with Patti, 9-15-78)

Two reasons may be cited for the student teachers initial disagreement with the belief in pupil control. First, student teachers began the semester

with a need to be accepted by pupils. Student teachers preferred to establish rapport instead of control with pupils. One way student teachers established rapport was by getting to know pupils. Figure 6 identifies some ways of getting to know pupils used by student teachers.

Figure 6

Ways of Getting To Know Pupils

Learning names
Observing pupils
Giving name tags
Introducing yourself
Tuning into pupil interests
Walking around and helping pupils
Bring in treats
Chaperoning a dance
Smiling at pupils
Kiding with pupils
Reading a story to pupils

Prior experiences may also account for some of the student teacher's initial disagreement with pupil control. In terms of a grade school experience, one student teacher recalled:

> "When I went to school some of my teachers were real tyrants when it came to having control. I'm not going to make the same mistake of mistreating kids that these teachers made." (Interview with Russ, 3-3-79)

Part of the student teacher's resistance to pupil control may also be due to their beliefs and values acquired during prior training at the University. In methods of teaching courses, student teachers were usually taught to value the pupils' individuality, potentiality for growth and uniqueness as a person.

Early in the semester, student teachers found that pupils were expected to obey certain rules established by the cooperating teacher. Student teachers also learned they were expected to help the cooperating teacher enforce the rules for pupil behavior. In addition, these rules should be reinforced consistently with the cooperating teacher's strategies for securing and maintaining pupil control.

Since student teachers occupied a subordinate position in relation to cooperating teachers, student teachers were expected to conform to the role requirements of rule enforcer. This subordinate position was reflected in the cooperating teacher's view of student teachers as helpers. Cooperating teachers usually accepted student teachers with an expectation of receiving help with the daily classroom routine. According to cooperating teachers, one of the student teacher's major responsibilities was to help maintain order and a low noise level in the classroom.

As their role of enforcer became defined, student teachers experienced an incongruence between self and role. On one hand, student teachers preferred to establish rapport with pupils and get them actively involved in lessons. In contrast to their personal opinions, student teachers were required to adopt a control-oriented approach toward pupil behavior.

By mid-semester, the student teacher's attitude toward pupil control usually changed from disagreement and resistance to acceptance. A sixth grade student teacher described her attitude change in the following manner:

> "I remember quite vividly coming to River Valley Elementary School and observing Miss M.... I walked away with a very bad view of this teacher, vowing never to treat students in such a manner... She was insulting these poor darlings, she was treating them like morons and she looked like she hated what she was doing... My, how my opinion has drastically changed... Now I envy her." (Interview with Barb, 12-8-78)

Two reasons may be attributed to the student teacher's attitude shift towards acceptance of pupil control. First, student teachers modified their initial assumptions about pupils. Through repeated interactions with pupils, student teachers learned to predict certain times during the school day when pupils will be noisy. Some of these times included during and after recess, lunch and special periods such as gym.

In addition to modifying their assumptions about pupils, student teachers also experienced success with the cooperating teachers strategies for securing and maintaining control. As they experienced success with these strategies, student teachers began to feel more comfortable with their role of rule enforcer.

SUMMARY

Although research on student teaching affirms that cooperating teachers influence student teachers' attitudes and behaviors, not much is known about the process of influencing. Researchers could gain a better understanding of this process by examining how influence occurs during the interactions between the cooperating and student teacher. Ethnographic methods were identified as useful for studying these interactions. In addition, Gearing's model of cultural transmission was helpful in organizing and presenting data.

An examination of data revealed that throughout the semester cooperating teachers transmitted three expectations about pupil control to student teachers. Student teachers were expected to: 1) have control of pupils, 2) enforce the cooperating teacher's rules for pupil behavior, and 3) use strategies for controlling pupil behavior that are consistent with the cooperating teacher's strategies. Using Gearing's concept of equivalence, these expectations were identified as an agenda which cooperating teachers brought to their encounters with student teachers.

One pattern gleaned in relation to the transmission of the pupil control agenda was the student teacher's attitude change from resistance to acceptance of pupil control. Student teachers initially disagreed with their cooperating teacher's assumptions about teacher-pupil interaction. In spite of their disagreement, student teachers were expected to enforce the cooperating teacher's rules for pupils and to use strategies that were consistent with the cooperating teacher's strategies. As the semester proceeded student teachers gradually accepted the cooperating teachers assumptions about teacher-pupil interaction and practiced methods of controlling pupil behavior.

In order to account for the shift from resistance to acceptance of pupil control, it was hypothesized that student teachers began the semester with a set of anticipatory expectations about teacher-pupil interaction. Based upon their prior experiences, student teachers expected teachers to establish rapport and involvement instead of control of pupils. However, as the semester proceeded student teachers learned that in order to be successful they must enforce a set of rules for pupils which emphasized quiet and orderly behavior. As a result student teachers comprimised their initial expectations with the formal requirements of their role.

BIBLIOGRAPHY

Amidon, Edmund and Hunter, Elizabeth. "Direct Experiences in Teacher Education: Innovation and Experimentation." The Journal of Teacher Education 17 (Fall, 1966), 282-288.

Argyle, Michael. Social Interaction, New York: Atherton Press, 1969.

Davis, Corrine, R., "Personality Type Discrepancies and Student Teacher - Cooperating Teacher Relationships." Dissertation Abstracts International, 31 (July, 1970), 260.

Doyle, Walter, "Learning the Classroom Environment: An Ecological Analysis." Journal of Teacher Education 28, (November - December, 1977), 51-55.

Eddy, Elizabeth, M. Becoming a Teacher: The Passage to Professional Status. Columbia University: Teachers College Press, 1969.

Filstead, J., Qualitative Methodology, Chicago: Markham, 1970.

Flint, Shirley, H., "The Relationship Between Classroom Verbal Behavior of Student Teachers and Classroom Verbal Behavior of Their Cooperating Teachers." Paper presented at 6th Annual Convocation on Education Research, October, 1965.

Franke, Charles, "The Ethnographic Study of Cognitive Systems," In Cognitive Anthropology, edited by Stephen Tyler, New York: Holt, Rinehart and Winston, Inc., 1969.

Fuhrmann, Martha, "Intern Attitudes Toward Teaching and Inner City Pupils: Extent and Type of Influence of Cooperating Teachers." Dissertation Abstracts International, 31 (February, 1971), 4003.

Gearing, Frederick O. "Where We Are and Where We Might Go: Steps Toward a General Theory of Cultural Transmission," Council on Anthropology and Education Newsletter 4 (February, 1973), 184.

Hill, John N. "A Comparative Study of Student Teacher Performance Resulting from Matching Student Teacher with Supervising Teacher" Dissertation Abstracts International 30 (November-December, 1969), 1896-A.

Hoy, Wayne K. "Pupil Control Ideology and Organizational Socialization: A Further Examination of the Influence of Experience on the Beginning Teacher" School Review 77 (1969), 257-265.

Iannaccone, Lawrence. "Functions of Student Teaching," Cooperative Research Project. (1964).

Leslie, Larry L. "Improving the Student Teaching Experience Through Selective Placement: U.S. Office of Education, Report # BR-9-H-015, Washington, D.C., 1969.

Lortie, Daniel, "Teacher Socialization: The Robinson Crusoe Model" in The Real World of the Beginning Teacher, 1966.

Lutz, Frank and Ramsey, Margaret A., "The Use of Anthropological Field Methods in Education," Educational Researcher 11 (1974), 5-9.

McAuley, J.D., "How Much Influence Has A Cooperating Teacher?" The Journal of Teacher Education. (March, 1960), 79-83.

McLeod, Richard, J., "Changes in the Verbal Interaction Patterns of Secondary Science Student Teachers Who Have Had Training in Interaction Analysis and the Relevance of the Changes to the Verbal Interaction of Their Cooperating Teachers," Dissertation Abstracts 28, (1967) 145-A.

Osmon, R.V., "Associative Factors in Changes of Student Teachers' Attitudes During Student Teaching," Doctoral Dissertation, Indiana University, Ann Arbor, Michigan: University Microfilms, 1959, No. 59-4279.

Parsons, Talcoh, "Social Interaction" in International Encylopedia of Social Sciences, 7 (1969), 249.

Peck, Robert and Tucker, James A., "Research on Teacher Education," in Robert Travers (Ed.), Second Handbook of Research on Teaching. Chicago: Rand McNally and Company, 1973.

Price, Robert, D., "The Influence of Supervising Teachers" Journal of Teacher Education 12 (1961), 471-475.

Pritchard, Florance F., "Matching Student Teachers with Cooperating Teachers: A Review of the Literature," ERIC Documents, ED 087 759, March, 1974.

Rist, Ray, "On the Relations Among Research Paradigms: From Disdain to Detente" Anthropology and Education Quarterly 8 (May, 1977), 42-50.

Roberts, Joan I., "An Overview of Anthropology and Education" in J. Roberts and S. Akinsanya (ed.) Educational Patterns and Cultural Configurations The Anthropology of Education, New York: David McKay Company, 1976, 1-20.

Sanford, A., "The Practice Teaching Experience and Its Effect on Cadet Teacher Attitudes Toward Pupils," Doctoral Dissertation, Boston University School of Education, Ann Arbor Michigan, University Microfilms, 1969, No. 59-6957.

Simon, Anita and Boyer, Gil, Mirrors for Behavior III: An Anthology of Observation Instruments, Wyncate, Communications Materials Center, (1974) 3.

Spradley, James P. and McCurdy, David W. The Cultural Experience: Ethnography in Complex Society. Chicago: Science Research Associates, 1972.

_____. The Man in the Principals' Office: A Ethnography. New York: Holt, Rinehart, and Winston, Inc., 1973.

Yee, Albert H., "Do Cooperating Teachers Influence the Attitudes of Student Teachers?" Journal of Educational Psychology, 4 (1969), 327-332.

THE INSERVICE PREPARATION OF CATHOLIC SECONDARY SCHOOL PRINCIPALS FOR A LEADERSHIP ROLE IN LOCAL STAFF DEVELOPMENT

By

Robert G. Duch
Curriculum and Supervision
University of Pittsburgh

THE INSERVICE PREPARATION OF CATHOLIC SECONDARY SCHOOL PRINCIPALS FOR A LEADERSHIP ROLE IN LOCAL STAFF DEVELOPMENT

ROBERT G. DUCH, PH.D.

A. Introduction

According to the Rand Corporation Report, "The Change Agent Study," successful change agent projects in schools surveyed in the United States seem to be operating as staff development projects...and their findings offer clues for effective staff development. (Berman and McLaughlin, 1975, p. 57) The Report's findings indicate that there is a resurgence of interest in staff development for administrators and teachers and that most staff development programs and practices are ineffective and irrelevant. Three factors are identified as among the most important in determining the outcomes of the successful staff development projects:

1. the recognition of the principal as the key figure in the school;
2. the need for a heuristic local implementation strategy;
3. the need for a solid conceptual model.

The investigator in this study incorporated these factors in the inservice preparation of principals for a leadership role in local staff development. He designed and implemented a personalized and heuristic program of interaction between the secondary school consultant and six selected principals individually and collectively to prepare them for a leadership role in local staff development. The program of interaction is called an "inservice preparation program" which is a series of meetings and collaborative activities designed to implement specific strategies to prepare the principal for a leadership role in local staff development. A "leadership role" is defined as a behavior pattern of the principal in which the needs of the staff and the school are recognized, problems are accurately

stated, and a heuristic and personalized plan of action for staff development is implemented in the school. Staff development is an administrative and management plan for the purpose of instructional improvement.

> "...by heuristics we mean (after Simon and Newell, 1958) principles or devices that contribute, on the average, to the reduction of search in problem-solving activity.... Heuristic problem solving procedures are procedures organized around such effort-saving devices....Because a heuristic procedure substitutes the effort-reduction of its short cuts for the guaranteed optimal solution of an exhaustive method, the justification of such a program as a problem solver must be in terms of the number of cases successfully solved and the relative amount of effort involved." (Tonge, 1961, pp. 16-17)

A personalized approach is taken when an individual

> "assist(s) each person in the identification of specific choices that might be realistic for him....makes available potential alternatives....facilitate(s) the individual's understanding of his present circumstances and of how their modification may change the possibilities open to him.... enable(s) an individual to make immediate choices, while also considering long-range alternatives....provide(s), interpret(s), and relate(s) information at the individual's maturity and educational level....assist(s) the individual in increasing awareness of himself and his present potential environments." (Hollis and Hollis, 1969, p. 16)

The inservice preparation program is said to be humanistic if it is heuristic and personalized. By facilitating the learning and helping process for the human being (the principal), the consultant will show a concern for the principal's emotional development, intellectual growth, and moral, religious and aesthetic values and drives. (Simon, 1975, p. 32) In short, humanistic means to attend to the "whole person."

The investigator in this study used an action research design and conducted research to diagnose the existing patterns of staff development employed by the principals individually and collectively. He also clarified and showed directions toward the solutions of the practical problems encountered in preparing principals for a leadership role in local staff

development. He helped the school district see directions for adaptive change and growth and to provide data on the organization's movement in those directions through formative and summative evaluation. (Jenks, 1970, pp. 135-136)

B. Methodology of the Study

In action research, evidence is obtained about the achievement of the study's objectives in regard to (1) goals, (2) measurement processes and analysis of data, and (3) application of data.

1. Goals of the Study

The goals of the study were to:

a) design a heuristic and personalized inservice preparation program for Catholic secondary school principals;
b) implement the above inservice preparation program.

Individual goals and needs of principals and secondary schools were determined by applying the diagnostic paradigm to the study. The diagnostic paradigm provided the general and holistic structure for the conferences between the consultant and the principal in which needs were recognized, problems were stated, and objectives were agreed upon. The principal's attitudes, concepts, and skills were assessed in various ways depending upon the data.

The program of interaction between the consultant and principal included diagnostic conferences in which the focused interview and "The Helping Process" were used. This program was heuristic and personalized, and helped to prepare the principal for a leadership role in staff development in the school for which he was responsible. The plan for staff development in the school was characterized by the conceptual framework of

the diagnostic paradigm, the recognition of the principal as the key figure in the school, and the personalized and heuristic conditions of the implementation strategies.

Data were collected to give evidence to show whether the goals of the study were attained. Data were also collected from the principals to give evidence whether they perceived and accepted the design and whether they participated fully in the implementation of the design.

2. Measurement Processes and Analysis of the Data

In the analysis of the data collected by audio-tape and written journals, practical significance rather than statistical significance was emphasized. This entailed a subjective analysis on the part of the investigator and participating principals. Since inferences were made by the investigator, the investigator's experience as a secondary school principal and as an educational consultant had to be taken into account.

To assist the investigator and the principal in their subjective analysis of the desired conditions for implementing the preparation program, perspectives and propositions considered essential to humanizing staff development, personalizing staff development, and making staff development heuristic for principals were arranged in three separate instruments. (See pp. 7-8.) In the three instruments, each perspective and proposition is shown to be directly related to at least one of the study's operational criteria.

After the first month of the study and again toward the end of the study, the principal and the consultant used the instruments to appraise the degree of implementation of each proposition in the preparation program. A rating scale ascertained the individual perceptions of the degree of implementation of the heuristic and personalized conditions.

PERSPECTIVES RELATED TO HUMANIZING / PREPARATION PROGRAM*

Degree of Importance

N = Not important
S = Somewhat important
V = Very important

	Degree of Importance	Directly Related to Operational Criterion # (See page 16)
1. Leadership is concerned with enhancing and facilitating the growth of individuals who possess values, attitudes, ideas, and who are seeking to increase their personal worth. Staff development, therefore, must be a humanizing experience affording opportunity for personal discovery and at the same time helping the individual to acquire competence that enables him to provide options and alternatives for other learners.....	N S V	7
2. Leadership extends to the development of the full potential of humanness of every individual. Principals must feel that their potential is accepted and valued, their capacity for responsibility trusted, and their creative ability prized. Potential is personal and individual; hence, the consultant who would release the potential in principals must know them as individuals.....	N S V	1
3. Learning takes place in an interdisciplinary way. Staff development must be designed in process and content in keeping with sound principles of learning related to the enhancement and growth of individuals. Incorporating a humanistic approach to learning will necessitate supervisory efforts that are primarily interactive rather than preactive.....	N S V	6
4. Learning is viewed as a dynamic process in which individuals acquire knowledge through self-reflection and interaction with others. When individuals are met at a level and through means that are central to their concerns, interests, ideas, and modes of thinking and feeling, they are likely to generate their own insights into situations and problems.....	N S V	2
5. Humanizing staff development is a process of designing learning cooperatively with consultant and principal to fit a particular principal according to needs, interests, and abilities. It requires attention to and provision for openness as a viable and essential factor in the growth of individuals.....	N S V	4

6. Meaningful professional growth activities cannot be planned successfully unless principals have a major role in the identification and articulation of their needs. In order for significant change in perceptions and behavior to occur, principals must participate in the direction and control of their own professional growth..... N S V 4

7. A school climate or educational setting that recognizes and encourages self-growth activities and professional decision making will result in greater principal initiative and competency than one in which these supporting forces are not present..... N S V 3

8. Staff development should be concerned with interaction in which principals are encouraged and guided in clarifying beliefs and values in light of their own experiences. When individuals change their values, a change in behavior will occur in the process. Principals can be assisted in this process by the consultant through discussing, clarifying questions, providing the means for principals to analyze their functional capacity, identifying congruency between stated beliefs and practices, and helping principals take steps to change their behavior in light of important beliefs and values..... N S V 3

9. Staff development should be closely related to creating options and alternatives in the helper-helpee interaction. This is the facilitation process for putting into practice the important idea of finding personal meaning and humanization of instruction. Individuality is accepted and diversity is used to build options and alternatives. Consultant's and principals' strengths and interests are utilized and new strengths and interests are promoted. Developing options and alternatives can be accomplished through constant inquiry, invention, creation, reconceptualization, and experimentation..... N S V 7, 8, 9

10. Principals will be motivated to take part in staff development activities if they see direct relationship between these activities and their daily school concerns..... N S V 5

*Based on Callie P. Shingleton's "Propositions Related to Humanizing Staff Development"

PROPOSITIONS RELATED TO PERSONALIZING A PREPARATION PROGRAM*

Degree of Implementation
N = No implementation
P = Partial implementation
F = Full implementation

	Degree of Implementation	Directly Related to Operational Criterion # (See page 16)
1. The principal's need was adequately diagnosed...	N P F	4
2. The consultant assisted the principal in clearly stating the problem.....	N P F	3
3. The consultant and the principal agreed on a specific objective for the preparation program.....	N P F	6
4. The consultant prescribed a preparation program based on the principal's identified need, problem, and objective.....	N P F	4
5. The principal was given significant control of his own program and was able to vary it substantially according to changing circumstances.....	N P F	8
6. Varied instructional strategies were offered to the principal for selection.....	N P F	7
7. Various resources, related to the individual prescription, were made available to the principal.....	N P F	7
8. Varied amounts of structure were provided when the principal demonstrated he could work independently, in small groups, or that he needed to work directly under supervision.....	N P F	6
9. Opportunities were given to the principal for formative evaluation of the preparation program.....	N P F	2, 1

*Based on Dunn and Dunn's criteria for individualizing or personalizing learning programs.

PROPOSITIONS RELATED TO MAKING A PREPARATION PROGRAM HEURISTIC*

Degree of Implementation
N = No Implementation
P = Partial Implementation
F = Full Implementation

The principal who is making significant progress toward heuristic learning:

	Degree of Implementation	Directly Related to Operational Criterion # (See page 16)
1. is willing and capable of learning from and with others	N F P	6
2. participates in diagnosing, prescribing, and evaluating his own progress	N F P	2
3. clarifies his values and establishes goals consistent with those values	N F P	6
4. takes increased responsibility for his own learning	N F P	3
5. develops individual and group plans for achieving goals	N F P	6
6. exercises self-discipline	N F P	3
7. understands his own learning style and is willing to try other potentially useful learning styles.....	N F P	8
8. becomes familiar with and knows how to use a variety of resources for learning	N F P	7
9. is capable of reporting what he has learned in a variety of ways	N F P	8
10. knows when and how to ask for help or direction from others	N F P	5

*Based on Delmo Della-Dora's criteria for heuristic learning.

Degree of Implementation

N = No Implementation
P = Partial Implementation
F = Full Implementation

The consultant and the principal also appraised the degree of importance of the perspectives related to humanizing the preparation program.

Degree of Importance

N = Not Important
S = Somewhat Important
V = Very Important

The research design included a formative evaluation schedule to monitor the steps of the preparation program. This schedule included the principal's response on two occasions to questions such as:

a) What is your general perception of the preparation program at this point?
b) What are your specific perceptions of the conditions of the program?
c) Are we following the steps of the diagnostic paradigm?

The consultant and the principal were co-contributors in this naturalistic and formative evaluation which was concerned with discovering, describing, and measuring important things that occurred in order to increase understanding, in stimulating thought, and in extending experiences. Formative evaluation was used as a decision-making process that generated findings for establishing standards, for modifying behavior and for on-going problem solving.

The investigator also used the Myers-Briggs Personality-Type Indicator, Kolb's Learning Style Inventory, and Schutz's FIRO-B inventory as measurement instruments. These three instruments provided important data for the consultant about the principals' and the consultant's dominant and shadow personality types, their preferred learning styles, and characteristics of their interpersonal relationship behavior which included their reciprocal

compatibility in the areas of Inclusion, Control, and Affection. Reciprocal compatibility measures the degree to which the expressed behavior of one person equals the wanted behavior of the other person, and vice-versa. Formulae are provided by Schutz to compute whether a particular pair of individuals is compatible. (Schutz, 1966, p. 112) These formulae generate scores ranging from 0 to 18. Zero represents perfect compatibility; eighteen represents extreme incompatibility.

By using the strategies of the diagnostic conference, networking, and collaboration with the staff, opportunities became available for the consultant to measure important events at appropriate times within the limits of a naturalistic design. Consequently, the action research design of this study produced data that were recycled into a program which helped to prepare principals for a leadership role in local staff development.

Summative evaluation focused on the contributions of the various elements of the inservice preparation program (a,b,c,d), principals' ratings (e, f), the principal's leadership role in local staff development (g, h), the consultant's adequacy (i), the consultant's perceptions (j). The investigator collected and analyzed data concerning:

a. each principal's inservice preparation program by describing the principal's need, problem, and objective, and the principal's attitude, concepts and skills in relation to the identified objective.

b. each principal's perceptions about the diagnostic paradigm as an adequate conceptual model for the preparation program and for local staff development.

c. the principal's perceptions of each desired condition, operational criterion, and selected strategy.

d. the initiation of local staff development based on the principles suggested in the literature.

e. each principal's rating of the degree of importance of each perspective and the degree of implementation of each proposition in the preparation program. Each principal assessed the degree of importance and implementation in the middle of the study and at the end of the study.

f. examples cited by each principal in interviews between the principals and the consultant which support their assessment of the degree of importance and implementation.

g. the principals' perceptions of the extent to which the interaction program prepared them for a leadership role in local staff development.

h. the principal's self-perceptions as a leader in local staff development.

i. the principals' perceptions of the consultant's adequacy in his role as a helper and facilitator of learning.

j. the consultant's perceptions on each of the above nine points.

3. Application of the Data

The last step of the action research design was to apply the collected and analyzed data in the implementation of an inservice preparation program at various developmental stages of the study. For instance, analysis of the FIRO-B (Fundamental Interpersonal Relationship Orientation-Behavior) data was helpful to the consultant in developing strategies to enhance compatibility. An action research design gave the necessary freedom to the consultant and principals to be flexible and adaptive in applying the conceptual framework, the five implementation strategies, and the operational strategies.

This step of the action research design has also been used at the conclusion of the study. The investigator has collected, analyzed, and evaluated the results of the study and has made recommendations about future practical applications of the program's design and implementation.

C. Review of Related Literature: Design of an Inservice Preparation Program

1. The Principal's Leadership Role in Local Staff Development

Brown describes the unique status of the principal:

> "As a leader and manager of an educational institution, the school principal must be more than politically and administratively skillful and more than a survivor. He must be able, through power of mind, or integrity, or love, or justice, both to educate and to lead. His margin of freedom may be small, but he cannot act as though that margin does not exist. He stands for what is simultaneously a social and spiritual enterprise. It is precisely this opportunity for leadership that makes the principal so important. His position is unique; no other person has quite the same contact with all of the strands in the web of relationships involved in the public schools." (Brown, 1974, p. 20)

Former Commissioner Bell relates the quality of education to administrative leadership and sees the need for the continuing professional growth of school administrators:

> "I think that the only way we are going to significantly and permanently improve the quality of education is to take the first step of improving the quality of leadership, because our schools can't be any better than the kind of leadership we give them. And I think the school administrator has been greatly neglected in American Education." (Bell, 1974, p. 1)

Expectations for administrators continue to increase on the part of school boards, parent groups, courts of law, teacher unions, and minority groups. If administrators are to be effective in improving the quality of education while meeting their obligation to respond to many constituencies and competing priorities, "most important is inservice education and renewal, retraining, and support of the administrator who has been in the field for some time and needs an opportunity to regenerate his capabilities." (Bell, 1974, p. 1)

In this study, an inservice program was designed and implemented to prepare principals for a leadership role in local staff development in order to help the principal respond more effectively to the many constituencies and competing priorities, and to improve the quality of leadership and the quality of education.

2. Staff Development Programs

On the national level, the Charles F. Kettering Foundation has developed a program which responds to the needs of the administrator and the school. The Kettering program includes five major steps:

"1. An administrator is designated to provide leadership for development of the school district's plan of administrative inservice education.
2. This educator involves other administrators in organizing a plan of action.
3. Given a sketch of the district's program, interested administrators volunteer to join the endeavor. Collegial teams are organized consisting of from eight to twelve administrators. Each team organizes learning activities.
4. Each participating administrator develops his own professional growth program directly related to school improvement projects.
5. Yearly, the participating administrators refine the district's program." (Brainard, 1973, pp. 31-32)

Brainard lists the following criteria for effective administrator renewal programs:

"1. individualized to the greatest extent possible in regard to the renewal topics and problems identified by the involved administrator;
2. related to the on-the-job concerns of the administrator;
3. related to the school improvement projects organized and conducted by the administrator;
4. continuous, rather than consisting of 'one shot' events which lack follow-up activity;
5. largely based on small group workshops or similar activities;
6. based on the goal of improved performance on the job as opposed to only providing administrators with new or additional information about improved schools." (Brainard, 1975, p. 5)

According to the Rand Corporation Report, a heuristic staff development program for principals and teachers maximizes the chances for success.

> "It provides a variety of options; it has a flexible program format; it stresses individual and small group learning; and it is concrete and directly tied to on-going activities. In short, staff development is assumed to be an adaptive learning process." (McLaughlin and Berman, 1977, p. 194)

The Diocese of Pittsburgh (the school district in which the study was conducted) is silent in describing and listing criteria for the design and implementation of inservice programs for principals and teachers.

However, by extension, the "Catholic Philosophy of Education" for the school system's regular school programs should be consistent with in-service programs. Values, ideals, and "attending to the whole person" are basic principles in the Catholic Philosophy of Education. (Diocese of Pittsburgh, 1977, p. 12) Meeting individual needs, interests, and abilities is emphasized in the Diocese's "Continuous Progress Program."

Responding to the individual adult as a learner is a key concept in non-school staff development programs such as industry's Human Resource Development (HRD). In HRD staff members are considered learners; learning is based on identified needs, objectives are clarified, various learning strategies are considered for the adult learner.

> "...HRD is concerned with releasing human potential....There is no reason that school organizations cannot emulate and perhaps surpass what has been done in non-school organizations to develop the human resources of all employees at all levels." (Nadler, 1977, p. 204)

In school programs, McLaughlin and Berman concluded that effective professional development is highly dependent upon the district's point of view of the principal and teacher as a learner. Learners must see themselves as having different needs at different times; they themselves must know what it is they need to know; they must be willing; they must be able. (McLaughlin and Berman, 1977, p. 191)

Berry indicates that a learner's growth experiences in inservice programs must be individualized.

> "We must individualize the growth experiences for teachers, principals and school 'systems' as well as for children. If growth experiences are to be meaningful, lasting, and important, they must 'belong' to the learner, not be 'imposed' by someone else." (Zenke, 1976, p. 180)

Carkhuff's research provides further clues for the design and implementation of an inservice preparation program for this study. Carkhuff

considers learning to be a lifelong journey and that "we recycle our learnings many times." (Carkhuff, 1977, p. i)

> "Effective learning involves three phases: exploring where we are in relation to our world and the people in it; understanding where we are in relation to where we want to be; acting to get from where we are to where we want to be." (Carkhuff, 1977, p. i)

In his program of helping people to learn ("The Helping Process"), Carkhuff says that the helper assists the helpee in exploring, understanding, and acting through "attending, responding, personalizing, and initiating." (Carkhuff, 1977, p. 1) Respect and trust for the client are basic to Carkhuff's cyclical process as reiterated by Shingleton:

> "Persons in leadership, whether supervisor or principal, must be aware of and in touch with the thoughts, feelings, and perceptions of teachers as expressed through their communication and behavior....Commitment to humanistic objectives embodies an approach to staff development predicated on respect for and trust in the individual. Authentic consultation and participation are vital in this process." (Shingleton, 1977, p. 60)

While researchers for the Rand Study report that staff development is being increasingly recognized as a critical concern for school districts, it is suggested that a "solid conceptual model" is necessary for both the design and the implementation strategies. This general and holistic framework can maximize chances for relevant and effective staff development programs.

The literature reviewed above establishes the need for two desired conditions to be met by the conceptual model and the implementation strategies. These conditions are that the model and the strategies be heuristic and personalized. The two conditions have been translated into operational criteria extracted from the literature review. Figure 1 indicates whether each criterion is heuristic or personalized. The sources of the operational criteria are also listed.

OPERATIONAL CRITERIA	DESIRED CONDITIONS		SOURCE
	HEURISTIC	PERSONALIZED	
1. Respect and trust for clients (principals)		X	CA, DP, SH
2. Self-exploration		X	CA, DP
3. Helped to deeper understanding through attending, responding personalizing, initiating		X	CA, DP
4. Responds to individual needs, interests, and abilities		X	BR, DP, HR, RA
5. Concrete and tied to on-going activities	X		DP, DF, RA
6. Stresses individual and small group learning	X	X	DP, DF, RA
7. Variety of options	X	X	BR, DP, HR, RA
8. Flexible program format	X	X	BR, DP, RA
9. Continuing	X		BR, DP, DF, RA

BE = Berry
BR = Brainard
CA = Carkhuff
DP = Diocese of Pittsburgh
HR = Human Resource Development
KF = Kettering Foundation
RA = Rand Corporation Study
SH = Shingleton

Figure 1: Operational Criteria for the Conditions Desired in the Study

3. The Conceptual Model

A conceptual model for this study must be consistent with the heuristic and personalized conditions. The desired model would be a "governing" one in the sense that it would determine what problems were critical and it would provide the investigator with a theoretical framework for understanding and dealing with problems. It would suggest to the practitioner certain actions or routines as being more valid than others and certain standards of proof for determining effectiveness. (Sergiovanni, 1979, pp. 3-4)

"A Diagnostic Paradigm for Supervision and Teaching" (See Figure 2.) has been chosen as the conceptual model for this study because it meets the heuristic and personalized conditions and is able to incorporate a wide range of implementation strategies. The diagnostic paradigm has been articulated both for supervision and teaching, and these are the central concerns for the preparation of the principal in a leadership role for local staff development.

Seager defines supervision in education

> "as a resource to be managed by teachers for the improvement of instruction and for the professional growth of the staff. Diagnostic supervision in education is supervision that responds to individual needs, interests, and abilities in the context of institutional and community goals and priorities for educational services." (Seager, 1974, p. 5)

The investigator in this study is concerned with the growth of the principal and the staff, with responding to the principal's individual needs, interests, and abilities, with school and diocesan goals, and with educational services as an educational consultant.

Although the diagnostic paradigm has been shown to be applicable to supervision and teaching, it is reasonable to assume that it is general enough to apply, in this study, to an inservice preparation program for principals.

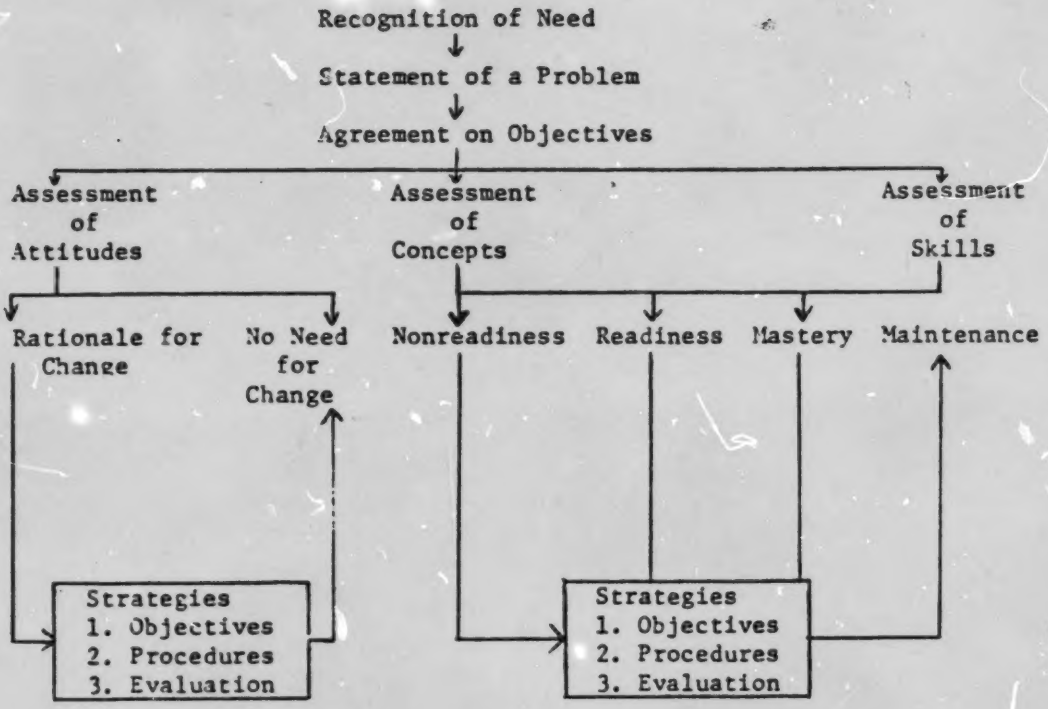


Figure 2: A Diagnostic Paradigm for Supervision and Teaching (Seager, 1974, p. 4)

Following the steps of the diagnostic paradigm, needs of the principal and the school are recognized. The problem is then stated. The consultant and the principal (in this study) agree on objectives for the eventual improvement of instruction and for the professional growth of the principal and of staff members. The consultant assesses the principal's attitudes, concepts, and skills in relation to the identified objective. The development of strategies follows. Strategies are developed to maintain or enhance the principal's favorable attitudes or modify unfavorable attitudes. Before developing a strategy, a rationale for change in extant attitudes is needed.

The assessment of concepts and skills determines whether the principal is at a stage of nonreadiness, readiness, or mastery of the concepts and skills necessary for reaching the identified objective. Various strategies can be used for various stages. Each strategy has three major components: objectives, procedures, and evaluation. Objectives may be short - or long-range, single or multiple. Procedures may differ in each preparation program depending on a variety of variables. Formative evaluation can help the consultant and the principal to re-examine objectives, modify procedures, and judge the progress of the preparation program. In some cases, strategies need to be developed only to maintain or enhance extant attitudes, or to maintain or extend mastery of certain concepts and skills.

Having established a solid conceptual model for the inservice preparation program for principals, the investigator searched for implementation strategies that would meet the desired conditions. A process was also desired which would help the consultant to establish a personalized and heuristic relationship with the principal. Carkhuff's "The Helping Process" was chosen because, as an educational consultant working with the secondary school, the investigator is often in the role of helper and the principal in the role of helpee.

4. The Helping Process

The consultant (helper) assisted the principal (helpee) in exploration of the problem, development of better understanding, and planning a course of action by attending, responding, personalizing, and initiating. Listening very carefully, maintaining eye contact, and conveying empathy, respect, and warmth were some of the ways that the helper facilitated self-exploration.

The sharing and discussion took the form of a focused interview in which "the limits of relevance are largely self-defined for the interviewee by the concrete situation to which he has been exposed. The focal character of the experience results in a maximum yield of pertinent data." (Good, 1966, p. 15) If, in the focused interview, the helper conveyed empathy and respect, then warmth should have followed according to Carkhuff. Carkhuff and Truax view warmth as "...accepting (one) as a separate person and, thus, a willingness to share equally his joys and aspirations or his depressions and failures. It involves the individual as a person, separate from any evaluation of his behavior or thoughts." (Carkhuff and Truax, p. 53) The helper tried to be specific with the helpee, sharing relevant feelings, thoughts, and experiences in concrete terms.

When the helper disclosed personal feelings and desires in a genuine way, the self-disclosure helped to stimulate a closer and deeper understanding between the helper and helpee. If a discrepancy still needed to be resolved, the helper could have used one of three confrontation strategies in the later stages of helping depending upon the immediacy of the helper-helpee relationship.

This heuristic and personalized process facilitated problem solving and assisted the principal in this study to identify areas of personal and institutional needs, and to develop goals, objectives, and strategies for local staff development.

5. Five Selected Implementation Strategies

Five implementation strategies were used in the study:

a) The Diagnostic Conference;
b) The Self-Assessment Inventories;
c) Networking;
d) Collaboration with the Staff;
e) Formative Evaluation.

a) The Diagnostic Conference

By following the steps of the paradigm in a diagnostic conference with the principal, the consultant and principal recognize needs, state problems, agree on objectives, assess attitudes, concepts, and skills, and develop specific strategies as needed.

b) The Self-Assessment Inventories

Soren Kierkegaard's words from "The Journals" introduce the second implementation strategy in this study:

> "That if real success is to attend the effort to bring a man to a definite position, one must first of all take pains to find him where he is and begin there. This is the secret of helping others....For to be a teacher does not mean simply to affirm that such a thing is so, or to deliver a lecture, etc. No, to be a teacher in the right sense, is to be a learner. Instruction begins when you, the teacher, learn from the learner, put yourself in his place so that you may understand what he understands, and in the way he understands it...." (Kierkegaard, 1854, p. 29)

Since the investigator was actively involved in this study in helping the principal to be a leader in local staff development, "understanding" the principal was important. The second strategy, then, was to increase the degree of understanding by analyzing the data from three self-assessment inventories:

i) Kolb's "Learning Style Inventory" (LSI);
ii) "The Myers-Briggs Personality-Type Inventory;"
iii) Schutz's "Fundamental Interpersonal Relationship Orientation-Behavior" (FIRO-B)

i) The purpose of Kolb's Learning Style Inventory is to measure a person's learning styles derived from experiential learning theory.

(Kolb, 1976, p. 1) In this study the LSI measured the principal's strengths and weaknesses as a learner and identified the principal's dominant learning style: Converger, Diverger, Assimilator, or Accommodator. It measured the relative emphasis on four learning abilities: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE). There were two combination scores that indicated the extent to which an individual emphasized abstractness over concreteness (AC-CE) and the extent to which an individual emphasized action over reflection (AE-RO).

If the learner (principal) was to be effective, all four kinds of learning abilities were to be used. When the facilitator of learning (consultant) was effective in preparing the principal for a leadership role in local staff development, knowledge of the principal's dominant learning style and learning abilities proved helpful in developing appropriate learning activities. The preparation program was built in part on the principal's strengths while an attempt was made to strengthen the weaknesses.

ii) The purpose of the Myers-Briggs Personality-Type Indicator is to discover a person's dominant and shadow personality types. Since the consultant was involved in an interaction program with the principal, sharing the findings of the Indicator provided a stimulus to the user's insights and helped to explain important differences or similarities between them. The Indicator was used as an adjunct to sound judgment derived from experience and other data about the principal.

iii) "FIRO-B is a measure of a person's characteristic behavior toward other people in the areas of inclusion, control, and affection. It is designed not only to measure individual characteristics but also to assess relationships between people, such as compatibility." (Schutz, 1967, p. 3)

Inclusion is a person's need to establish and maintain a satisfactory relationship with people in regard to interaction and association. Control is a person's need to establish and maintain a satisfactory relationship with people in regard to control and power. Affection is a person's need to establish and maintain a satisfactory relationship with others in regard to love and affection.

The investigator chose to use FIRO-B in the study in order to assess the relationship between the principal and the consultant who were involved in close interaction and association. FIRO-B studies indicate that there has been a positive effect as a result of compatibility in real-life dyads. (Schutz, 1967, p. 7)

This information has been synthesized by the investigator as part of the data base in the interaction between the consultant and the principal in the diagnostic conferences. The synthesis took the form of a profile for each participating principal and for the consultant.

c) Networking

Heuristic and personalized criteria support the strategy of "networking" in the meaning of the term as used by Marrow, Foster, and Estes. In their view,

> "school administrators cannot long survive unless they band together in some way and learn to look for answers to their problems outside the closed circle of professional training. Training--the word itself and all that it implies--is part of the problem. Rarely does professional training actually prepare people for the job; they learn that on the job itself, or perhaps in an internship or apprenticeship." (Marrow, Foster, and Estes, 1974, p. 17)

By sharing common problems and concerns in a heuristic and personalized atmosphere, "the issue for most practitioners is to translate into action what they know and believe. So, rather than being saturated with more theory, the participants are asked to tell each other what they know about dealing with critical issues in their own system." (Marrow, Foster, and Estes, 1974, p. 17)

d) Collaboration with the Staff

According to Schmuck (1977), successful staff development not only means sharing among principals is important, but also principals and teachers must find time for professional collaboration. "The most powerful professional development for administrators will occur over the next decade for those administrators who join with their teachers in programs of collaborative professional development." (Schmuck, 1977, p. 2)

McLaughlin and Birdsall provide further insights into this strategy.

> "...collaboration must be linked to a problem-solving process that is responsive to local needs and underpinned by a strong commitment to address those needs. To be real and amenable to cooperative efforts, those needs must be felt and understood by both community and staff....The whole purpose of collaboration, problem solving, and planning is the development of new capabilities and programs in the school. If that is not the actual outcome then the entire process is without value and purpose.... The organizational capacity to successfully implement school improvement activities and programs varies from institution to institution, from site to site, and over time even within sites. That is why collaboration is so important. It is a building process. That is why solutions and program activities must be designed and adapted to fit a particular organizational setting of community, school, and classroom. No two such settings are the same, no two groups of participants are the same." (McLaughlin and Birdsall, 1979, p. 18)

The concept of collaboration is supported by Huffman who asked two groups of educators to rank order critical components for staff development. The components that received the highest ranking were: "the program must be responsive to the needs of teachers," (Huffman, 1978, p. 51) and, "the certificated staff must recognize the need for a particular staff development program." (Huffman, 1978, p. 43) From his data, Huffman extracted the first critical component which was "Staff developers and teachers must agree on goals and objectives that meet the needs of the individual teacher." (Huffman, 1978, p. 87)

By employing the concept of networking in preparing the principal for a leadership role for local staff development, "...training for an experienced principal is often a process of enabling him to act on what he already knows." (Merrow, Foster, and Estes, 1974, p. 17)

Collaboration, then, was a desired strategy in this study. Use of "The Helping Process" in collaboration helped the individuals establish mutual respect and trust.

e) Formative Evaluation

When the program was underway, formative evaluation procedures were used. (Parsons [1977], Reed [1977], Schmuck [1977], Scholock [1972] and others indicated the need for formative evaluation.) According to the National Dissemination Center for Performance Based Education, program evaluation should possess three characteristics. (Potter, 1974, p. 166) Evaluation should be formative so that information can be provided which can be used to help the program designers shape the program toward ultimate success. Formative evaluation also addresses itself to the processes by which the system functions. The research effort should be aimed at determining the validity of the program's goals in terms of the relationship between the competencies developed by the program and learner growth.

Provus (1969) says that when formative evaluation is seen as a necessary part of a program development, judgments can be made on the program at various points of its life relative to the various developmental stages through which it goes. He says that sound formative evaluation practice not only provides the information that researchers need but the freedom to act on that information.

Sergiovanni (1978) agrees that evaluation seeks to provide understanding and is designed to inform. He says that the evaluator develops a representation of events that have taken place--a portrait. The portrait characteristics of the evaluation assume that multiple and sometimes contradicting understandings and meanings exist. The evaluator's job was to identify and describe them. The evaluator and the person being evaluated shared the expert role and the evaluation was done together.

Finally, the conceptual model, the desired conditions, and the five implementation strategies are heuristic and personalized. Because no exhaustive method is known to guarantee optimal solutions in preparing principals for a leadership role in local staff development, effort-saving devices to reduce search have been derived and developed from the literature. Even if there were an exhaustive procedure, it would seem impractical to employ. Because there is not a standard role in a principal's leadership behavior, heuristic and personalized approaches in the preparation program are feasible. What this investigator is offering does promise to reduce the search, but does not guarantee an optimal solution.

The diagnostic paradigm is an effort-saving device which incorporates heuristic problem solving procedures. For instance, by assessing a principal's stage of nonreadiness, readiness, or mastery in relation to the agreed upon objective, the consultant is able to reduce the amount of effort in developing appropriate courses of action.

Each of the five implementation strategies is an effort saving device. For instance, the formative evaluation strategy provided the consultant with important information from the principal about the progress of the preparation program which contributed to the reduction of search for satisfactory solutions.

When the inservice preparation program is seen as a journey of self-exploration, self-understanding, and purposeful action, the growth experience "belongs" to the learner (the principal), and the experiences and the journey become personalized. In the inservice preparation program, the consultant tried to become aware of and to be in touch with the feelings, thoughts, and perceptions of the principals as expressed through their inter-personal communication orientation, preferred learning styles,

and personality types. This attempt to attend and respond to the needs and concerns of the principal helped to personalize the interactions between principal and consultant.

D. Presentation and Analysis of Data

1. Personal Profiles

The personal profile of the consultant and each principal is based upon the investigator's observations and experiences. The Myers-Briggs Personality-Type Inventory, Schutz's FIRO-B, and Kolb's Learning Style Inventory have been used in this study to support or verify the consultant's perceptions of each principal, to deepen his understanding of the principal, and to aid in preparing the principal for a leadership role in local staff development.

The data in the personal profile have provided clues to the principal's and consultant's: a) important personality differences and similarities; b) interpersonal behavior characteristics and compatibility; c) strengths and weaknesses as a learner.

The three inventories are complementary and give a consistent picture of the consultant and principal. The consultant was particularly influenced by six principles stated in the manuals accompanying the inventories:

i) "opposite personality types can supplement each other in any joint undertaking;" (Myers-Briggs, 1978, p. 5)

ii) "the best teamwork is usually done by people who differ on one or two preferences;" (Myers-Briggs, 1978, p. 5)

iii) "the two or three preferences they have in common help them to understand each other and communicate;" (Myers-Briggs, 1978, p.5)

iv) FIRO-B "is designed not only to measure individual characteristics but also to assess relationships between people, such as compatibility;" (Schutz, 1978, p.2)

v) learning is "an integral and explicit part of work itself;" (Kolb, 1975, p. 8)

vi) all four learning styles are "essential for optimal learning." Kolb, 1975, p. 13)

2. Individual Preparation Programs

What the consultant learned about himself and others by means of the three inventories was useful in developing a positive working relationship with principals and in shaping events for preparing them for a leadership role in local staff development. In addition to the strategy of using the three self-assessment inventories, the strategies of the diagnostic conference, networking, collaboration with the staff, and formative evaluation also played a prominent part in the events of the preparation program. The investigator in this study wrote descriptions of the events which showed how all five strategies were incorporated by the consultant in the study.

3. Analysis of Interrelationships of the Five Selected Strategies

This section analyzes the collective impact of the strategies and interrelationships among the strategies.

For each participant the diagnostic conference was a key strategy because it provided the necessary holistic framework for personalized consultation and humanistic interaction between consultant and principal. It allowed the consultant and principal the flexibility to address specific concerns by focusing on the appropriate step of the diagnostic paradigm.

The diagnostic conference provided "freedom within a structure" which helped the consultant to operationalize the criteria of the study. The structure provided a theoretical framework and a practical map which helped direct the consultant in preparing principals for a leadership role in local staff development. The freedom that was provided by the flexibility of the structure allowed the consultant and principal to be

adaptive, developmental, and humanistic. Rather than employing an experimental and mechanistic approach, consultant and principal were free to build a working relationship based on respect and trust as testified to by each principal.

The diagnostic conference would not allow a consultant to choose a direct and authoritative approach in interactions with principals. Perhaps some Catholic school principals would see this approach as more productive. However, it is the view of this investigator that the "Catholic Philosophy of Education" is best realized and most effectively fulfilled in the design and implementation of an inservice preparation program when the heuristic and personalized (humanistic) criteria are operationalized. In his analysis, the investigator also believes that a direct and authoritative approach would not prepare principals for a leadership role in local staff development because they would neither be given an opportunity to recognize the need and state the problem, nor the opportunity to agree on objectives and choose appropriate strategies. They would not be permitted to explore, discover, create, initiate---in short, there would be no need for a diagnostic conference; the principal would not be the leader in the school (which the literature identifies as important) and the inservice preparation program for Catholic secondary school principals would not adhere to the "Catholic Philosophy of Education."

The second most important strategy was the use of the three self-assessment inventories. Some principals may not agree with the investigator on this point. However, data collected from the inventories, the clinical interpretations provided by accompanying manuals, and the observations which confirm and corroborate the data and interpretations supplied the consultant important information about himself and each principal. He was able to use this information to analyze some behavioral

characteristics (e.g., similarities or differences in personality-types, similar or different preferred learning styles, the amount of Inclusion, Control, and Affection that each person expressed and desired, the degree of compatibility between principal and consultant). This analysis gave clues for preparing principals for a leadership role in local staff development. Self-knowledge derived from the inventories helped the consultant to be more adaptive.

In each case, the consultant was able to select various secondary procedures for implementing individual inservice preparation programs because of the data from the inventories.

The strategies of the diagnostic conference and inventories complement one another. Just as the conferences were used to help the consultant diagnose needs and plan courses of action, so too the inventories were used to diagnose certain behavior characteristics which, in turn, was helpful in planning appropriate strategies. The use of the inventories fits naturally into the fourth step of the diagnostic conference which is the assessment of attitudes, concepts, and skills.

Depending on what the consultant learned about the individuals in the diagnostic conferences and in the data from the inventories, the other three selected strategies had differing degrees of importance. In some cases, principals were already collaborating with the staff, or vehicles for collaboration (e.g., department chairpersons, Academic Council) were established. This indicates the flexibility that the consultant enjoyed in using this strategy. He also discovered that where collaboration with the staff was used in connection with the framework of the diagnostic paradigm, local staff development programs were natural and necessary considerations. Once the members of the staff stated their needs and problems, the principal was forced to consider ways of meeting their needs.

Formative evaluation was another strategy that had relative degrees of importance and was used in different ways by the consultant. Depending on the principal and the situation, the consultant used formative evaluation to compare his perceptions with another person's perceptions, to seek strategies to solve problems, to explore a vaguely stated need, to change objectives. In one case the consultant had to make a special effort to involve a principal in evaluating their relationship. In other cases formative evaluation was a natural part of informal conversations with principals. When the consultant was able to use formative evaluation while collaborating with the staff in a diagnostic conference, and being privy to data from the Personality-Type Inventory about each participant, a near optimal situation was created for planning local staff development. This occurred in school B on one occasion.

The importance of the networking strategy depended on the individual. One principal viewed the networking sessions as "social affairs" and another principal stated that this was the most important strategy in the study. The investigator believes that networking provided opportunities for principals to share concerns, interests, and problems with one another. When they had common concerns, interests, and problems, they were able to experience a certain camaraderie, a feeling of community, a sense of affirmation. When their concerns diverged, care and concern for and a sincere response to one another were expressed. Flexible and adaptive implementation of the networking strategy was important in keeping with the heuristic and personalized conditions of the inservice preparation program.

In summary, all five selected strategies were important in the design and implementation of the study. The diagnostic conference, following the steps of the diagnostic paradigm, was the key element which

provided the necessary holistic structure, theoretical in framework and practical in application. For this investigator the use of the self-assessment inventories played a significant part in developing humanistic strategies. For staff development to be effective and relevant, collaboration with the staff was important. When changes were necessary at various developmental stages of the inservice preparation program, formative evaluation provided important information. The networking strategy was valued for different reasons and to different extents by the participants.

Except for the diagnostic conference which was essential, the other four strategies varied in importance depending on the individual and the school. However, in the investigator's subjective analysis, if any one of the strategies had not been included in the design and implementation, the inservice preparation program would not have been as effective and relevant, as heuristic and personalized.

E. Conclusions and Implications for Further Research

The principals in this study accepted the selected implementation strategies as a guide in their preparation for a leadership role in local staff development. The subjects in the study, with one exception, found the process used by them to be logical, developmental, holistic, and humanistic.

A personalized and heuristic approach in action research could be useful to administrators and teachers in conducting needs assessments, clarifying problems, reaching agreement on objectives, and developing effective staff development programs. For such an effort to succeed, principals will need a program to prepare them for their role in local staff development. Further research in preparation programs for principals should test additional strategies and employ the diagnostic paradigm in other school systems with other consultants and principals.

The investigator discovered that underlying emotional and psychological needs came to the surface as participants followed the diagnostic paradigm to recognize needs, state problems, agree on objectives, form personalized working relationships, collaborate with one another, and evaluate their progress. The consultant became increasingly aware of the principal's (and his own) emotional development, intellectual growth, and moral, religious, and aesthetic values and drives as factors in the individualization of the preparation program for a leadership role in local staff development. Further research could test the importance of these factors in preparation programs and in the selection of principals.

The investigator gained a deeper appreciation of each principal's unique individuality. Some principals were also beginning to appreciate more fully the differences and similarities among their staff members and were encouraged to build local staff development programs based on their needs, interests, and abilities. Some principals and teachers developed a more favorable view of the Schools Office through the work of the consultant. Further research could be extended to test areas of compatibility among staff members toward building effective working relationships for planning and conducting local staff development programs. Research could also analyze those factors which effected a more favorable view of the Schools Office.

The personalized and heuristic approach in preparing principals for a leadership role in local staff development was demanding and laborious, beset with obstacles produced by human weaknesses and failings. The in-service preparation program might have been more immediately productive and less time consuming if it had been mandated and mechanistically implemented. However, when this shortcut was taken with some teachers, dissatisfaction resulted because the staff development program was perceived by them as irrelevant. In those cases where principals accepted

and used the diagnostic paradigm as a conceptual model, and included the staff in diagnostic conferences, in collaboration, and in formative evaluation, foundations were laid for effective and relevant staff development programs. The principals became familiar with this design when it was implemented by the consultant in preparing them for a leadership role. The conclusions in this paragraph are consistent with the conclusions found in the literature review (e.g., Huffman, 1978).

The investigator found that data from self-assessment inventories were very important to him in choosing appropriate procedures for individual principals in each preparation program based on their dominant and shadow personality-type, preferred learning style, and characteristics of their inter-personal relationship behavior. The investigator came to the realization that Inclusion, Control, and Affection were significant in analyzing some difficulties he encountered. He found that his own position on these behaviors was not compatible with that of some of the principals. Consequently, he became more flexible in responding to the fundamental interpersonal relationship orientations of others. Future research using a larger sample of participants may be helpful in determining the usefulness of such instruments in building foundations of self-knowledge for facilitating viable processes in preparing principals for a leadership role in local staff development programs.

A gradual change in some principals' attitudes was observed. None of the principals had scheduled local staff development programs in the school calendar before the study was initiated. At the end of the study, all of the principals saw the need for and were scheduling staff development programs for the second semester. Future researchers may use pre- and post-measures in the implementation of inservice preparation programs. These tests could help determine principals' attitudes about, interests in, and abilities for implementing local staff development.

The five selected strategies were found to be consistent with the diagnostic paradigm and were gradually succeeding in building a foundation of personal and professional growth among the secondary school principals that can lead to effective and relevant staff development programs. Variables such as the amount of time needed for implementation, training programs to prepare consultants for implementing preparation programs, and expressed priorities of central office administrators for such programs can be evaluated as determinants of success in future research studies.

Perhaps the most immediate value of this action research study is realized in the practical use of the data obtained for the preparation of Catholic secondary school principals for a leadership role in local staff development at the research site. Other researchers may be interested in replicating the study in private or public schools to further determine its usefulness and effectiveness.

Finally, the results of the study were entirely consistent with and complementary to the conclusions of the literature review.

BIBLIOGRAPHY

Bell, James. "Commissioner Bell Calls for Upgrading of Educational Leadership and Greater Effort from State Legislatures." The School Administrator, Volume 31 (November, 1974).

Bennis, Warren G. "Where Have All the Leaders Gone?" Technology Review, (March/April, 1977)

Berman, Paul and McLaughlin, Milbrey. "The Change Agent Study." Federal Programs Supporting Educational Change: The Findings in Review." R-1589/4-HEW. (The Rand Corporation, April, 1975).

Birdsall, Les. "A Guide to the School Improvement Program." Network, (Sacramento, California, 1976).

Borg, Walter R. and Gall, Meredith D. Educational Research: An Introduction. (New York: David McKay Co., Inc., 1971).

Brainard, Edward. "Individualizing Administrative Inservice Education." Trust for Educational Leadership, Volume 2, (April, 1973).

_____. "The Colorado Department of Education and the Development of Education and the Development of School District Based Administrator Renewal Programs." ERIC DOCUMENT 114993, (November, 1975).

Brown, Alan F. "Reactions to Leadership." Educational Administration Quarterly, Volume 3 (1967).

Brown, Charles E. "The Principal As Learner." The National Elementary Principal, (July-August, 1974).

Carkhuff, Robert R. The Development of Human Resources: Education, Psychology, and Social Change. (New York: Holt, Rinehart, and Winston, Inc., 1971).

_____. Helping and Human Relations: A Primer for Lay and Professional Helpers. Volume I: Selection and Training. (New York: Holt, Rinehart, and Winston, Inc., 1969).

Carkhuff, Robert R., Pierce, Richard M., and Cannon, John R. The Art of Helping. (Amherst, Maryland: Human Resource Development Press, 1977).

Della-Dora, Delmo, "What Is Self-Directed Learning?" Moving Toward Self-Directed Learning. (Edited by Delmo Della-Dora and Lois Jerry Blanchard. (Washington, C.D.: ASCD, 1979).

Diocese of Pittsburgh. Handbood of School Policies and Practices. (March, 1977).

Dunn, Rita and Dunn, Kenneth. Educator's Self-Teaching Guide to Individualizing Instructional Programs. (West Nyack, New York: Parker Publishing Co., Inc., 1975).

Goodlad, John I. "Staff Development: The League Model." Theory Into Practice, Volume 11 (October, 1972).

Greenfield, T.B. and Andrews, J.H.M. "Teacher Leader Behavior and Its Relation to Effectiveness as Measured by Pupil Growth." Alberta Journal of Educational Research, Volume 7 (June, 1961).

Hagen, Donald E. "The Role of the Principal in a Systematic Program of Supervision/Appraisal in a Small School District." (Unpublished Ph.D. dissertation, University of Pittsburgh, 1972).

Hollis, Joseph W. and Hollis, Lucille U. Personalizing Information Processes: Educational, Occupational, and Personal-Social. (Ontario: The Macmillan Co., 1969).

Huffman, H. A. "The Identification of Critical Components in a Staff Development Program Based on the 1976 Recommendations of the National Council of Teachers in English." (Unpublished Ed.D. dissertation, University of Pittsburgh, 1978).

Jenks, R.S. "An Action Research Approach to Organizational Change." The Journal of Applied Behavioral Science, Volume 6 (1970).

Keeler, B.T. and Andrews, J.H.M. "The Leader Behavior of Principals, Staff Morale, and Productivity." Alberta Journal of Educational Research, Volume 9 (September, 1963).

Kierkegaard, Soren. The Journals, (1854).

Kolb, David A. Learning Style Inventory: Technical Manual. (Boston, Mass.: McBer and Co., 1976).

Lapcevic, Paul S. "The Application of Experiences in Two In-Service Programs to the Development of a Paradigm for Diagnostic Supervision." (Unpublished Ph.D. dissertation, University of Pittsburgh, 1973).

Lippitt, Ronald, Watson, Jeanne, and Westley, Bruce. The Dynamics of Planned Change: A Comparative Study of Principles and Techniques. (New York: Harcourt, Brace, and World, Inc., 1958).

Macdonald, James B. "Scene and Context: American Society Today." Staff Development: Staff Liberation. Edited by Charles M. Beegle and Roy A. Edelfelt. (Washington, D.D.: ASCD, 1977).

McKeegan, Hugh F. and Moore, William J. "Personality Characteristics, Learning Style and Job Satisfaction Among School Principals." (Unpublished paper, Harrisburg, Pa., March 6, 1979).

McLaughlin, Mildred and Berman, Paul. "Retooling Staff Development in a Period of Retrenchment." Educational Leadership, (December, 1977).

McLaughlin, Milbrey and Birdsall, Les. "Implementing and Sustaining School Improvements." Network. (Palo Alto, California: 1979).

McNamara, William Fr., O.C.D. The Art of Being Human. (Milwaukee, Wisconsin: The Bruce Publishing Co., 1962).

Merrow, John Foster, Richard, and Estes, Nolan. "Networking: A White Paper on the Preparation of School Administrators" The National Elementary Principal, (July-August, 1974).

Myers-Briggs, Isabell. The Myers-Briggs Type Indicator. (Palo-Alto, California: Consulting Psychologistis Press, Inc., 1962).

_____. Introduction To Type. (Gainesville, Florida: Published by the AMSA Foundation through its Center for Applications of Psychological Type, 1978).

Nadler, Leonard. "Learning From Non-School Staff Development Activities." Educational Leadership, (December, 1977).

Olivero, James L. and others. "Self Performance Achievement Record (SPAR)." A CFK Ltd. Occasional Paper. (Englewood, Colorado, Spring, 1973).

Parsons, Michael H. ". . .Against the Dying of the Light: Staff Development Confronts the 1980's." ERIC DOCUMENT 145881, (October 28, 1977).

Potter, David and Aubertine, Horace. "Task Force on Evaluating Program Effectivness." Competency Assessment, Research, and Evaluation. (Syracuse, New York: National Dissemination Center for Performance Based Education, Marcy 12-14, 1974).

Provus, Malcolm. Discrepancy Evaluation: For Educational Program Improvement and Assessment. (Berkeley, California: McCutchan Publishing Corporation, 1971).

Reed, Rodney J. "School Principals: Leaders or Managers?" ERIC DOCUMENT 145518, (July 16, 1977).

Rubin, Louis J. "The case for Staff Development." Professional Supervision for Professional Teachers. Edited by Thomas J. Sergiovanni. (Washington, D.C.: ASCD, 1975).

Schmuck, Richard A. "Professional Development Challenges for Educational Administrators: A Culminating Summary of Conference Themes." ERIC DOCUMENT 145552, (August, 1977).

Schutz, William C. The FIRO Scales: Manual. (Palo-Alto, California: Consulting Psychologists Press, Inc., 1967).

_____. The Interpersonal Underworld. (Palo-Alto, California: Science and Behavior Books, Inc., 1966).

Seager, C. Bradley, Jr. "An Introduction to Diagnostic Supervision Supervision." (University of Pittsburgh, 1974).

Sergiovanni, Thomas J. "The Rational Bias in Supervisory Thought: Issues and Alternatives." (Paper presented at National Invitational Conference on Instructional Supervision: Research and Theory. Kent State University, December 9, 1979).

Shingleton, Callie P. "Accountability and Staff Development." Staff Development: Staff Liberation. Edited by Charles M. Beegle and Roy A. Edelfelt. (Washington D.C.: ASCD, 1977).

Simon, Sidney B. and REad, Donald A., Eds. Humanistic Education Sourcebook. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975).

Stogdill, Ralph M. Handbook of Leadership. (New York: The Free Press, a Division of Macmillan Publishing Co., Inc., 1974).

_____. "Strategies for Administrative Staff Development." ERIC DOCUMENT 10[illegible] January, 1975).

Tange, Fred M. A Heuristic Program for Assembly Line Balancing. (Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1961).

Wiggins, Thomas W. "A Comparative Investigation of Principal Behavior and School Climate." The Journal of Educational Research, Volume 3 (November, 1972).

Zenke, Larry L. "Staff Development in Florida." Educational Leadership, Volume 34, No. 3 (December, 1976).

STUDENT-DESIGNED SIMULATIONS: AN IN-CLASS APPROACH TO THE PROBLEMS OF THE FUTURE TODAY

By

Edward M. Greb

Higher Education

University of Pittsburgh

STUDENT-DESIGNED SIMULATIONS: AN IN-CLASS APPROACH TO THE PROBLEMS OF THE FUTURE TODAY

Abstract

Classroom opportunities for students at all academic levels to test their reactions to future situations are rare. This statement served as a basis of a clinic in classroom simulation design conducted October 1979 at the Second Annual Conference of the World Future Society-Education Section.

It was suggested to the thirty American and Canadian participants that activation of student-designed simulations of future events would a) allow an interactional experience with conjectured future events, and b) enable students to view the interaction as routine.

The clinic format as well as quantitative and qualitative responses of the participants who spanned elementary, secondary and higher education segments of instruction to pre- and post-tests will be discussed.

This paper has two goals. First, it explores the use of student-designed social simulations as an in-class approach to an immediate examination of problems of the future. Second,

a report of a simulation design workshop conducted at the World Future Society-Education Section meeting in October 1979 will be presented.

Introduction

Much has been written about the need for "effective teaching." The public, teachers and students are concerned. There is a feeling that graduates are not prepared for the world they enter when leaving school. Various methods of accountability have attempted to determine 1) the nature of the existing problem, and 2) whether the problem can be alleviated.

Redfield suggested a definition for "effective teaching" that highlights the difficulties associated with its actualization. He said teaching can be considered "effective" when students are capable of adapting well, as adults to their social environment.[1] In a world that emphasizes the prefigurative patterns of enculturation, this charge appears impossible to achieve. According to Mead, an urgent problem facing the world today is the concept, speed and direction of change. She feels that societies must move from a reliance on crisis management to a posture of crisis anticipation.[2] The strategy used to increase "effective teaching" and simultaneously prepare the students to anticipate future concerns must be of such a design that it prepares a student for a

---

[1]R. Redfield, The Social Uses of Social Science. Chicago: University of Chicago Press, 1963, p. 97.

[2]M. Mead, Culture and Commitment. Garden City, New York: Natural History Press/Doubleday and Company, Inc., 1970, pp. 50-53.

world that currently does not exist. "Other generations believed that they had the luxury of preparing their children to live in a society similar to their own. Ours is the first generation to have the Socratic wisdom of knowing that we do not know the world in which our children will live."[3]

Student-Designed Simulation

Simulation--a teaching strategy which enables students to vicariously test both their powers of observation and decision-making abilities--has been suggested as a device to prepare students for the rapid change they are likely to encounter as adults.

Simulations are models of physical or social realities. Simulations are dynamic in that they involve people in behavior similar to that found in real life situations. Either all or part of the behavior found in reality may be represented by the model and performed in simulations.

An example of a simulation is the "link-trainer," developed in 1929 by Edwin Link and used by the RAF. Parts of an aircraft cockpit were placed in a classroom setting and pilot-trainees practiced decision-making and skill-improving options in a no-risk environment. A recent example of simulation use was the development of the Lunar Training Module. This device permitted astronauts the opportunities to train with relative safety prior to the Apollo moon missions. The astronauts were exposed to real as well as possible situations.

---

[3]R. W. Hostrop, (ed.), Foundations of Futurology in Education. Homewood, Ill.: ETC Publications, 1973, p. 217.

A simulation can, then, be viewed as an attempt to combine the world of instruction--the world of telling, with the "real" world--the world of doing. It is in the classroom that the simulation may well serve as a teaching strategy to prepare the student for the future. The simulation possesses the potential of multiple selections. As conditions of perceived realities change, the selection of elements from that "new" reality need not remain static. They can also vary. The suggestion that the curricula of the seventies contain the facts of the fifties and therefore develop in the student an awareness of the past but little or no vision of the future and its choices must be considered.[4] The simulation, through a varying of the elements selected, can approximate possible future realities. The student, thus, through non-risk interaction with the elements of the model, gains expertise in dealing with the unknown.

Clinic

At a clinic in classroom simulation design conducted October 17, 1979 at the Second Annual Conference of the World Future Society-Education Section, the idea of student involvement in the benefits of simulation participation was broadened. It was suggested that students be given the opportunity to design simulations for classroom use. A student-designed simulation has several purposes. It presents to the student

---

[4]D. L. Kaufmann, Jr., Teaching in the Future. Palm Springs, California: ETC Publications, Inc., 1976, p. 4.

the opportunity to check reactions to situations they personally created, and, perhaps more importantly, interaction with change becomes familiar and therefore, less threatening.

The clinic drew a group of thirty educators from Canada and the United States. These participants included representatives from the elementary, secondary and higher education levels and involved instructors from the natural sciences, the social sciences, and the humanities. Their task was to field-test a simulation design framework for for its possible use by students.

The two-hour morning portion of the clinic was divided into four segments. Initially, participants were introduced to the "Societal Analysis Framework" for simulation design. The "Societal Analysis Framework" consists of the components gleaned from an examination of a society. These components and their adaptation for in-class simulation design are:

1) Territory: the physical confines of the classroom, adjacent rooms and all furnishings and people present,
2) Composition: the organization of furnishings and people in the territory,
3) Membership Requirements: the characteristics needed by people/groups in the simulation in order that the simulation's objectives be met,
4) Modes of Conduct: the behavior individuals/groups are asked to perform to get across simulation objectives. These behaviors will often be gross

exaggerations of normal behavior to dramatize the points the designer intends; and

5) Function: the purpose of the simulation.[5,6]

The participants were then given a set of questions related to each component. The specific questions for each component are:

Territory: What is the size of the room? What type and how much furniture is present? How many students are present? Are there areas near the classroom that can be used for the simulation?

Composition: How should the people and furnishings be arranged to facilitate the reaching of your objectives? What groups should be formed to facilitate your objectives?

Membership Requirements: What characteristics (ex. age, sex, occupation, social class, etc.) do individuals and groups need to get across the objectives of the simulation? What characteristics will determine whether individuals/groups continue to be part of the simulation? What characteristics will determine

---

[5] A Committee of the Royal Anthropological Institute of Great Britian and Ireland (eds.), Notes and Queries on Anthropology, (6th ed.) London: Routledge and Kegal Paul Ltd., 1951, pp. 63-97.

[6] E. Greb, "A Universal Design for the Construction of Simulations," in Modeling and Simulation, Vol. 10, University of Pittsburgh, Pittsburgh, Pennsylvania, 1979, pp. 1923-1927.

removal of individuals/groups during the "running" of the simulation? What characteristics will result in the exclusion of individuals/groups from the simulation?

Modes of Conduct: What behaviors will result in easy identification of individuals/groups? What identifying behaviors will best facilitate reaching simulation objectives?

Function: What is the simulation designer trying to accomplish? What are the simulation participants trying to accomplish?

In the three-hour afternoon session, the participants were divided into five groups. By the end of the session, the groups had each designed a simulation, activated at least one portion of it and evaluated the workshop and the usefulness of the "Societal Analysis Framework."

Each group selected a topic of mutual interest. Topics ranged from "expected movement of zinc bearing bodies through strata to effects of energy shortages on production rates to problems of teaching the deaf."[7] Utilizing the questions associated with the components of the framework, the participants endeavored to design within one hour a simulation suitable for classroom use.

---

[7]B. Betler, "An Examination of the Effectiveness of Student-Designed Simulations in Modeling and Simulations, Vol. 11, University of Pittsburgh, 1980. In press.

Each of the groups successfully designed a simulation. In the remaining portion of the clinic, at least a segment of each newly designed simulation was activated and critiqued.

Data

Pre- and post-test questionnaires were distributed to participants. The questionnaires included both forced-choice items and open-ended items. Respondents were urged to be candid during completion of the open-ended questions.

Composite results from a set of statements in the post-test intended to determine clarity of component questions were extremely positive.

Strongly Agree	-	76%
Agree	-	23%
Disagree	-	1%
Strongly Disagree	-	---

Composite results of pre-test and post-test items designed to measure attitude toward preconceptions surrounding simulation design and activation indicated a slight shift in the attitudes of the simulation design participants. Preconceptions and myths associated with simulation design and use are real:

PRE-TEST		
Strongly Agree	-	3%
Agree	-	45%
Disagree	-	47%
Strongly Disagree	-	5%

POST-TEST

Strongly agree	-	---
Agree	-	35%
Disagree	-	45%
Strongly Disagree	-	20%

Responses to a series of questions designed to determine the academic level at which students would be able to design their own simulations for classroom use were generally positive.

	Yes	No
Elementary	10%	90%
Secondary	75%	25%
Undergraduate	90%	10%

In the open-ended segment of the post-test, strengths of the Societal Analysis Framework stated most frequently were:

1) increased potential of student-to-student involvement during class,
2) a simplistic approach easily understood and utilized,
3) an opportunity for students to assume the teacher's role,
4) simulations "bring home" objectives effectively
5) an opportunity to experience the "abstract" and the "future" and,
6) a chance to engage the imagination.

Summary

The value of classroom simulations as effective teaching strategies for faculty and students are multiple: 1) the class-

room simulation, by enabling the student to interact with the selected elements of reality, enhances the often unactivated physical dimensions of learning,[8] 2) the classroom simulation, because of the flexible nature of its selection of model elements, provides the opportunity for participants--students and faculty--to gain expertise in dealing with the unknown (the future) as well as the known (the past and the present); that is, a pattern of response is developed to deal with future or possible future events; and 3) the imposition of the "universal design" with its five components as the mandated framework for all models permits easy design of classroom simulations with a high isomorphic factor.

The clinic served as a field-test for the "Societal Analysis Framework." The use of the framework during the session suggests: 1) the framework appears to be easily activated and can be utilized effectively by instructors (as a teaching strategy) and by many students (as both peer-teaching and learning strategies), 2) a multitude of disciplines and all academic levels can easily utilize the questions related to the components of the framework, and 3) discernible attitudinal change (in a positive direction) regarding "myths" followed design and activation of simulations intended for classroom use.

---

[8] J. Huizinga, Homo Ludens. Boston: Beacon Press, 1950.

BIBLIOGRAPHY

Betler, B., "An Examination of the Effectiveness of Student-Designed Simulations in Modeling and Simulations, Vol. 11, University of Pittsburgh, 1980. In Press.

A Committee of the Royal Anthropological Institute of Great Britain and Ireland (eds.), Notes and Queries on Anthropology, (6th ed.) London: Routledge and Kegal Paul Ltd., 1951, pp. 63-97.

Greb, E., "A Universal Design for the Construction of Simulations," in Modeling and Simulations, Vol. 10, University of Pittsburgh, Pittsburgh, Pennsylvania, 1979, pp. 1923-1927.

Hostrop, R. W. (ed.), Foundations of Futurology in Education. Homewood, Ill.: ETC Publications, 1973, p. 217.

Huizinga, J. Homo Ludens. Boston: Beacon Press, 1950.

Kaufmann, D. L., Jr., Teaching in the Future. Palm Springs, California: ETC Publications, Inc., 1976, p. 4.

Mead, M., Culture and Commitment. Garden City, New York: Natural History Press/ Doubleday and Company, Inc., 1970, pp. 50-53.

Redfield, R., The Social Uses of Social Science. Chicago: University of Chicago Press, 1963, p.97.

THE EFFECT OF PARENTAL ABUSE AND NEGLECT UPON THE QUALITY OF THE CHILD'S SEPARATION-INDIVIDUATION PROCESSES

By

Louis Gregg Long

Higher Education

University of Pittsburgh

Table of Contents

Tables iii

Figures vi

Introduction 1

Statement of the Problem 2

Variables 2

Hypotheses 2

Methods 3

Setting 3

Participants 3

Instruments 5

Procedures 9

Scoring 10

Results 12

Preliminary Data Analysis 12

Data Relating to First Hypothesis 13

Data Relating to Second Hypothesis 15

Data Relating to Third Hypothesis 17

Discussion 20

Introduction 20

Research Findings 20

Recommendations and Implications 22

Appendices

A. SOCS-LO 24

B. SOCS-NEG 25

C. Separation-Individuation Scale 26

References 28

Tables

1. Characteristics of the Overall Sample (N=62) 30

2. Characteristics of the Subsample (N=33) 31

3. Basic Psychometric Information and Descriptive Statistics on the S-I Continuum Inventory Based on an N=24 Mean Age of 6.032 Months 32

4. Intercorrelation Matrix on the S-I Continuum Pilot Sample Based on N=24, Mean Age of 6.032 Months 33

5. Descriptive Statistics and Reliability Information on all Measures Used in this Study (N=62) 34

6. Intercorrelations Among Age and Abuse and Neglect Measure Used in this Study (N=62) 35

7. Adjusted Means and Standard Deviations on Delay and Appropriate Subscores for Groups Low and High in SOCS-LO on Overall Sample N=62 36

8. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO on Overall Sample N=62 37

9. Repeated Measures Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO on Overall Sample N=62 - Appropriate Subscore 38

10. Adjusted Means and Standard Deviations on Delayed, Appropriate and Advanced Subscores for Groups Low and High in SOCS-LO on Subsample N=33 39

11. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO N=33 -Delayed Subscore 40

12. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO N=33 - Appropriate Subscore 41

13. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO N=33 - Advanced Subscore 42

14. Adjusted Mean and Standard Deviations on Delayed and Appropriate Subscores for Groups Low and High in SOCS-Neglect on Overall Sample N=62 43

15. Repeated Measure of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG on the Overall Sample N=62 - Delayed Subscore 44

16. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG on Overall Sample N=62 45

17. Adjusted Means and Standard Deviations on Delayed, Appropriate and Advanced Subscores for Groups Low and High in SOCS-Neglect on Subsample N=33 46

18. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-Neglect on Subsample N=33 - Delayed Subscore 47

19. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG on Subsample N=33 48

20. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG on Subsample N=33 - Advanced Subscore 49

21. Adjusted Means and Standard Deviations on Delayed, Appropriate and Advanced Subscores for Groups High in SOCS-Lashing Out and High in SOCS-Neglect 50

22. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups High in SOCS-Lashing Out and High in SOCS-Neglect: 51

23. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups High in SOCS-Lashing Out and High in SOCS-Neglect 52

24. Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups High in SOCS-Lashing Out and High in SOCS-Neglect 53

Figures

1. Difference Between High and Low SOCS-LO Groups on S-I Delay and Appropriate Components on Overall Sample N=62 54

2. Difference Between High and Low SOCS-NEG Groups on S-I Delay, Appropriate and Advanced Components on Subsample N=33 54

3. Difference Between High and Low SOCS-Neglect Groups on S-I Delay, Appropriate Components on Overall Sample N=62 55

4. Difference Between High and Low SOCS-Neglect Group on S-I Delayed Appropriate and Advanced Components on the Overall Sample N=33 55

5. Difference Between High SOCS-Neglect and High SOCS-Lashing Out Groups on S-I Delay, Appropriate and Advanced Components 56

Introduction

As educators and professionals in the field of child development our knowledge and understanding is limited with regard to the impact of abuse and neglect upon the child's earliest social relationships. The literature is replete with speculations concerning the causes of child abuse and neglect, as well as its cognitive and physiological consequences. However, the literature is limited on the effects of abuse and neglect upon the child's psychological development. The intention of this effort is to contribute to the literature by focussing on the effects of abuse and neglect on the socioemotional development of children between 11 to 36 months of age.

Statement of the Problem

Child abuse and neglect has become not only an American, but a world-wide problem. Child abuse is receiving attention from our social institutions, the medical professions, and very importantly the judicial system, but the effect of abuse and neglect on the children themselves merits further study.

The writer has examined the literature to see to what extent child abuse and neglect affect the developmental processes of young children. The writer plans to determine the effects, if any, of child abuse and neglect on the separation-individuation process.

Variables

The independent variables are child abuse and neglect. The dependent variable is Separation-Individuation.

Hypotheses

1. Parental abuse has a negative effect on the Separation-Individuation process of the child.

2. Parental neglect has a negative effect on the Separation-Individuation process of the child.

3. The negative effect of parental abuse on the Separation-Individuation process is greater than the negative effects of neglect upon Separation-Individuation.

Methods

Setting

Right Start (RS) is a mental health program which specializes in primary, secondary, and tertiary prevention. The goal of RS is to improve and enhance the quality of individual and systemic functioning in families. The program began in 1971 at the request of a group of citizens in the Hill District of Pittsburgh who were concerned about the welfare and subsequent development of children from this area. The Hill District is a densely populated urban area of Pittsburgh.

Right Start is staffed by developmental specialists who receive intensive, continual inservice training in the areas of child development, infant assessment, and microcounseling techniques. Specialists visit their assigned families at least once per week. During these visits, they interact with the caregiver and the children in attempting to implement intervention plans which are updated every 16 weeks.

The two sites from which the participants are drawn will be identified as Site A and Site B. A continuum of abuse and neglect exists in both offices; however, the more serious cases are to be found at Site B.

Participants

There were 62 families who had children whose ages ranged from 11-36 months of age. The parents were rated on measures on abuse and neglect and the children on the Separation-Individiduation measure. Table 1, referred to on page , gives the lunar age and birth order of children whose parents participated in this study. The mean age of participating children was higher than expected. With a mean age and median of 23 months, almost half of the sample children were theoretically in or near the lower boundary of libidinal object constancy, the

oldest age grouping, which spans 24-36 months. Since almost half the sample falls within the most advanced phase, object constancy it is technically impossible to calculate advanced S-I scores for them. For children falling within the object constancy age range, it is possible to calculate appropriate S-I and delayed S-I scores only, not advanced S-I scores. Given this problem, two decisions having design implications were made. First, on the overall sample of N=62, a decision was made to examine all hypotheses using appropriate S-I and delayed S-I scores only. This means that in the overall sample, the advanced S-I scores of the younger children are not analyzed in terms of this approach. Second, a subsample of N=33 for younger children having delayed S-I, appropriate S-I, and advanced S-I scores were identified. The characteristics of the overall and subsample are provided in Tables 1 and 2. Each of the three hypotheses of this study is tested using the overall sample and then the subsample just identified.

Insert Table 1 about here go to page 30

Insert Table 2 about here go to page 31

The mothers selected from Site A reflect a racial composition of 99% black and 1% white. Ninety-nine percent of the mothers are from a lower socio-economic background, while one percent are of a lower middle-class strata. Approximately 70% of the mothers are unwed. The age range of the mother's are from 16 to 37 years of age. The average education for the mothers is the attainment of a high school degree or a general education diploma. The mothers who had been primarily identified as abusive or neglectful are primarily referred to Site A from social agencies, hospitals, and churches, and about 20% are

self referred. The mothers selected from the Site B facility reflect a racial composition of approximately 80% black and 20% white. All mothers at Site B had been identified as abusive or neglectful by the County Protective Service Agency and referred to RS. The age range of mothers is from 16 to 37 years of age. Seventy-five percent of the mothers are unmarried and 100% are of low socioeconomic status. The average education level is either a high school diploma or a general education diplimoa.

Instruments

Two of the measures that were administered with the participants on both Site A and Site B included the Styles of Coping in Systems Inventory Lashing Out (SOCS-LO) and Neglect (SOCS-NEG), Developed by Taylor (1974) (see Appendices A & B). The measures assess the characteristic coping styles deployed by individuals to confront and reduce tension within systems. There are ten identifiable, although occasionally overlapping styles of coping: constructive change, denial, escape, externalization, internalization, lashing, rationalization, resignation, removal and symptom expression.

From the review of literature on child abuse and neglect, pervasive themes regarding parental styles of coping bear resemblance to Taylor's structural models of lashing out, escape and removal. Based upon incidents and conceptualizations cited in the literature, it appeared at face value that lashing out and externalization together represented an active abusive mode of coping; whereas escape and removal bore more resemblance to neglectful acts of omission of care. Thus, with conceptual origins in the Styles of Coping in Systems Inventory, two scales were developed for the present research: Lashing Out-LO and Neglect-NEG. (Sourkes, 1976)

Every style of coping was identified and defined, and behaviorial items were developed for each scale. The "lashing out" style is observed when the caregiver's style of interaction with the child is punitive and rigid, and when the mother's demands and expectations are unrealistic and not in accord with the child's age and expected behaviors (e.g., "caregiver loses her temper with the child," "caregiver's expectations of child are unrealistic"). The caregiver who exhibits the "neglectful" style is inattentive to the child's needs and wants. The caregiver seems unable to acknowledge the child's attempt for interaction and assertion even at the expense of the child's psychological and/or physical welfare, (e.g., "caregiver sleeps when child is awake;" "caregiver leaves child unattended").

Measuring the continuum of parental abuse and neglect

In developing the Lashing Out and Neglect measures, three psychometric criteria were used to insure that:

a. Each item generated sufficient validity over the range of participants who were rated.

b. Each item correlated significantly with the subscale to that for which it was written; those which did not, were eliminated.

c. Each item correlated more with the subscale for which it was written that with the subscale for which it was not written. For example, each item on SOCS-NEG inventory correlated higher with its own total than with the total SOCS-LO total, and likewise for SOCS-LO items relative to SOCS-NEG. The Differential Validity Index, Taylor (1973) used for this assessment.

The statements designed by Taylor (1973) in his Differential Validity Index are developed for each scale and are rated from 0-10 (not in the least like to exactly alike) for their characteristic relatedness to the caregiver's current

style of coping with the child. The revised reversion of the Lashing Out Inventory contains 17 items, each rated on a 0-10 point scale, with a total possible range of 0-170. The revised version of the neglect scale also has 17 items, each rated on a 0-10 point scale with a total possible range of 0-170. Inter-rater reliability on families for SOCS-LO is .81 and for SOCS-NEG the inter-rater reliability is .88 on nine families.

Validation of items surviving these criteria had been provided by both Sourkes (1976) and Davis (1976). Sourkes (1976) found that mothers who were high in SOCS-LO had infants who most often possessed tempermental characteristics which classified them as "difficult" babies. These infants were not easily adaptable to the early mother-child negotiations. Sourkes found that these mothers displayed a greater proclivity toward lashing out or neglect, and conversely, she found that mothers who were low in SOCS-LO had infants with pleasant characteristics. This group of mothers tended to refrain from lashing out and neglectful behavior.

Davis (1976) found that mothers who were high in SOCS-LO produced fewer verbal messages in an observational setting than mothers who were low in SOCS-LO. Davis found that mothers who were low in SOCS-LO produced higher positive verbal responses than mothers who were high in SOCS-LO, while there was little noticeable difference in the overall level of negative verbal responses. In general, she found that mothers who were high in SOCS-LO had very low levels of positive communication and negative communication in an observational setting, while mothers who were low in SOCS-LO had much higher levels of positive communication and somewhat higher levels of negative communication.

Measuring the Continuum of Separation-Individuation

The third measure to be employed in the study will be the Separation-Individuation measure (S-I) developed by Taylor and Denton (1978) (see Appendix

C). The measure is a scale designed to provide a profile of a child's performance on each of the two early phases and the four subphases of the Separation-Individuation process. The items on the scale were written to reflect each of Mahler's (1975) age-specific behaviors of children along her Separation-Individuation continuum.

The Separation-Individuation scale contains 50 items, each rated on a 0-10 point scale. These items are representative of Mahler's phases on the Separation-Individuation continuum. There were eight items each for autism, symbiosis, differentiation, practicing, and rapprochement. For libidinal object constancy, there were 10 items, the total from which was prorated. The mean, medium, standard deviation, range, split-half reliability and inter-rater reliability corresponding to each subphase is presented in Table 3.

Psychometric procedures on S-I were carried out to ensure that:

a. Each item correlated significantly with the subphase total for which it was written; and

b. Each item correlated more with the subphase total for which it was written rather than with other subphase totals for which it was not written.

Additionally, Tables 3 and 4 provide information relevant to the construct validity of S-I, the data from both tables being taken from a pilot study of N=24 infants enrolled in an all-day day care program operated by RS. In Table 3, the subphase totals are consistent with the mean age of the sample. In particular, one would anticipate theoretically that the peak subphase for a sample with a mean age of six months would be differentiating. Table 3 shows that to be the case, with the means progressively diminishing across less adjacent subphases.

Insert Table 3 about here

Table 4 presents the intercorrelation among S-I subphases. Expectably for a sample with a mean age of six months, the correlation between differentiating and symbiosis (r=.645) and differentiating and practicing (r=.648) are higher than any other correlation involving the differentiation subphase.

Insert Table 4 about here

This suggests, a theoretical patterning which is consistent with developmental theory in general and with Mahler's expectations in particular. As more distant subphases are examined, it will be noted that the correlation between differentiating and those subphases decreases in magnitude, suggesting that the behaviors of six month old infants peeking in differentiating are more like those behaviors characterizing proximal subphases symbiosis and practicing than those behaviors characterizing the more distal subphases autism, rapprochement, and libidinal object constancy. These data are consistent and suggest a degree of construct validity for the S-I continuum as measured in this study.

Procedures

All families (N=62) were administered SOCS-LO, SOCS-NEG and S-I measures concomitantly by RS raters who knew each family for at least three months. These tests were part of a larger ongoing battery of measures which were administered routinely every 16 weeks. To eliminate systematic bias in the rating, seven raters were used, four from Site A and three from Site B, each of whom was blind to the hypotheses being investigated in their study.

Based upon scores on the SOCS-LO measure, parents who had scores that fell above the median were considered high, whereas parents who had scores that fell below the median were considered low. Parents whose scores fell avove the median of SOCS-NEG were considered high, and parents who scored below the median were considered low.

Scoring

The scoring of ratings from the S-I scale followed a somewhat complex procedure which can be illustrated in the following manner: Only the four subphases of S-I were used on the S-I scale. The reader should first recall that there are eight items on the differentiation, practicing, and rapprochement subscales, and since each item may receive a maximum score of 10, the maximum score for each subphase is 80. The libidinal object constancy subphase score was multiplied by .8 as part of the prorating procedure strategy to give a mixiumum of 80. Now it is possible to take a given subphase score over the maximum 80 and multiply the result by 100 to obtain a subphase score, but this procedure disregards the age of the child. To correct this problem in calculating the quotient for practicing, as an example, the following formula was used:

$$S\text{-}I_m = \frac{15}{CA} \times \frac{Score}{80} \times 100,$$

Where 15 represents the upper age limit in lunar months of the practicing subphase and where CA represents the child's actual age in lunar months.

If a 15 month old child obtained a practicing score of 80, then;

$$S\text{-}I = \frac{15}{15} \times \frac{80}{80} \times 100 = 100$$

If a 13 month old child received that same score, then;

$$S\text{-}I = \frac{15}{13} \times \frac{80}{80} \times 100 = 115$$

The child whose lunar age falls within the practicing range, ten to fifteen months, also has subphase scores on differentiation and rapprochement, the adjacent stages which precede and follow practicing.

Correspondingly, it is possible to speak of appropriate, delayed, and advanced development for this child. For the 13 month old child whose age appropriate score was 115, the above formulation is represented. If this same child of practicing age received a score of 25 on differentiating, it is possible to represent this as;

$$\text{S-I delayed} = \frac{10}{13} \times \frac{25}{80} \times 100 = 23$$

and finally, if this same child of practicing age received a score of 35 on rapprochement using the outer limit of 18 months for early rapprochement, it is possible to represent this as;

$$\text{S-I advanced} = \frac{18}{13} \times \frac{35}{80} \times 100 = 61$$

These procedures for scoring may be generalized to children of other phases defining the S-I continuum. Using these procedures it is possible to calculate S-I delayed ans S-I appropriate for all children in the overall sample and S-I delayed, S-I appropriate, and S-I advanced for all children in the subsample.

Results

Preliminary Data Analysis

Table 5 provides an overview of the central tendency, dispersion characteristics, and reliability of each instrument used in this study. By and large, the mean and median estimates for each measure are rather close. This discrepant mean 4.8 and median 0.31 can be explained by virtue of the fact that the samples used had mean ages of 21 months. Expectably, more than 50% of the samplewould be above the reported median of .31 on autism. Dispersion estimates reflect appropriate variability within the sample expecially taking into account the age range used in this study. In the last column of Table 5 are reported the Alpha Coefficients which are estimates of reliability for each measure. In all instances, the reliabilities are moderate to quite high, ranging from .65 for autism to .97 for libidinal object constancy on the S-I measure.

Insert Table 5 about here

Table 6 examines the intercorrelations of all measures used in this study, together with the child's age. Two important implications follow from a close inspection of these results. First, the special scoring procedures for factoring out the effects of age upon S-I delay, appropriate, and advanced scores was partially but not entirely successful. The correlation between age and S-I delay, S-I appropriate, and S-I advanced score was .01, -.30, and .17, respectively, with the negative correlation being significant at the $p<.05$ level. Second, the correlation between SOCS-NEG and SOCS-LO was .46, significant at the $p<.05$ level. Since the correlations between age and S-I scores and between SOCS-NEG and SOCS-LO were significant, a decision was made (a) to use SOCS-NEG

and age as covariates in all analysis involving hypothesis 1 and (b) to use SOCS-LO and age as covariates in all analysis involving hypothesis 2.

Insert Table 6 about here

Data Relating to First Hypothesis

The first hypothesis states that parental abuse has a negative effect on the S-I process of the child. In the overall sample (N=62) the difference of means on the delayed and appropriate scores for children whose parents scored low on lashing out and high on lashing out is graphically represented in Figure 1.

Insert Figure 1 about here

The means and the standard deviations on their delayed and appropriate scores are given in Table 7.

Insert Table 7 about here

The pattern of results indicates that there is no difference in the effects of abuse on the delayed score of children whose parents scored either in the high lashing out group or low lashing out group ($F(1,116)=.07$; $p>.05$; cf. Table 8). The pattern of results indicated that there is a statistically significant difference in the effects of abuse on the appropriate scores of children. The children whose parents scored low in lashing out scored 15 points higher on the appropriate score than the children whose parents scored high in lashing out ($F(1,166)=9.91$, $p<.002$; cf. Table 9). These findings support the

first hypothesis that abuse does have a negative effect on the child's S-I process.

Insert Table 8 about here

Insert Table 9 about here

In the subsample (N=33), the difference of means on the delayed appropriate and advanced scores for children whose parents scored low on lashing out and high on lashing out is graphically represented in Figure 2.

Insert Figure 2 about here

The means and the standard deviations on their delayed, appropriate and advanced subscores are given in Table 10.

Insert Table 10 about here

The pattern of results indicates that there is no significant difference in the effects of abuse on the delayed score of children whose parents scored either in the high lashing out group or low lashing out group ($F(1,61)=.42$, $p<.05$; cf. Table 11.

Insert Table 11 about here

The pattern of results indicates that there is a difference in the effects of abuse on the appropriate score of children. Parents who scored low in lashing

out had children who scored 15 points higher than the children whose parents scored high in lashing out, this difference being associated with $F(1,61)=6.52$, $p < .05$, as given in Table 12.

Insert Table 12 about here

The pattern of results indicates that there also is a significant difference in the effect of abuse on the advanced scores of these children. Parents who scored low in lashing out had children who scored 37 points higher than the children whose parents scored high in lashing out, giving an $F(1,61)=10.29$, $p<.001$ as summarized in Table 13. With the exception of the delayed subscore, these results also support the first hypothesis that abuse does have a negative effect on the child's S-I process.

Insert Table 13 about here

Data Relating to Second Hypothesis

The second hypothesis states that parental neglect has a negative effect on the S-I process of the child. In the overall sample (N=62) the difference of means on the delayed and appropriate scores for children whose parents scored low on neglect and high on neglect is graphically represented in Figure 3.

Insert Figure 3 about here

The means and standard deviations for the delayed and appropriate subscores are given in Table 14.

Insert Table 14 about here

The pattern of results suggests that parents who are high in neglect have children who are less delayed than children of parents who are low in neglect. Table 15 shows that the mean difference of eight points between these two groups are statistically significant ($F(1,115)=6.00$, $p<.02$). While the appropriate score suggests the children whose parents scored low in neglect has a higher appropriate score than the children of parents who scored high in neglect, Table 16 shows that this difference was not significant ($F, (1,115)=.54$, $p>.05$).

Insert Table 15 about here

Insert Table 16 about here

On the subsample of N=33 the difference of means on the delayed, appropriate and advanced scores for children whose parents scored low in neglect and high in neglect is graphically represented in Figure 4.

Insert Figure 4 about here

The means and the standard deviations on the delayed, appropriate and advanced scores are given in Table 17.

Insert Table 17 about here

While the delayed score suggests the children whose parents scored low in neglect, had a higher delayed score than the parents who scored high in neglect. This difference is not significant ($F(1,60)=0.44$, $p>.05$; cf. Table 18).

Insert Table 18 about here

The pattern of results indicates that the children of parents low in neglect have scores that are no more appropriate than the children of parents who scored high in neglect ($F(1,60)=.00$, $p>.05$, cf. Table 19). The pattern of results indicates that the children of parents who scored low in neglect had a higher advanced score than did the children of parents who scored high in neglect by six points. This difference is not significantly different ($F(1,60)=0.57$, $p>.05$; cf. Table 20). The second hypothesis thus receives only limited support in the overall sample but none in the subsample, although the trends in both sample and subsample are consistent with theoretical predictions.

Insert Table 19 about here

Insert Table 20 about here

Data Relating to Third Hypothesis

Based upon a median split criterion, a subsample of 34 parents who fell at or above the median on SOCS-LO were designated High LO and compared with 34 parents who fell at or above the median on SOCS-NEG, the latter being designated High NEG. The difference of the means on the delayed, appropriate and advanced scores for children whose parents scored high in neglect and high in lashing out is graphically represented in Figure 5.

Insert Figure 5 about here

The means and the standard deviations on the delayed, appropriate and advanced scores are given in Table 21.

Insert Table 21 about here

The pattern of results indicates that the children of parents high in neglect tend to be less delayed than are children whose parents are high in LO, but this difference is not significant ($F(1,31)=3.82$, $p>.05$; cf. Table 22)

Insert Table 22 about here

The pattern of results indicates the children of parents who scored high in neglect, scored five points higher than the children of parents who scored high in lashing out, but again this difference if not statistically significant (($F(1,31)=29.10$ $p>.05$; cf. Table 23).

Insert Table 23 about here

The pattern of results indicates that there is no significant difference in the effects of abuse or neglect upon the child's advanced score. The children of parents who scored high in neglect, scored only one point higher than children of parents who scored high in LO and this difference is not significant ($F(1,31)=.89$ $p>.05$; cf. Table 24).

Insert Table 24 about here

The trends just summarized are generally consistent with the third hypothesis, but in no instance is statistical significance achieved.

Discussion

The discussion is organized in two sections. The first examines the findings of this research in relation to the existing literature. The second section focuses on suggestions and recommendations for future research.

Research Findings

The first hypothesis, that parental abuse has a negative effect on the separation-individuation process of the child, was supported. This finding is consistent with empirical findings by Wolff & White (1965), Marans & Lourie (1967), Gil (1971), Waters (1978), Gelles (1978) who cite the negative impact of abuse on the cognitive, motoric and socioemotional development of the child. These results also are consistent with theoretical considerations offered by Mahler et al. (1975) and Sander (1976) in that parental insensitivity is associated with current and later delays or failures in adaptation. The basic regulatory synchrony of the mother-child dyad, once disturbed by insensitive maternal handling and lack of empathic understanding of the infant's needs, may cause behaviors which are uncharacteristic of the normal individuation child. Helfer & Kempe (1976) found that infants who suffered from maternal and environmental deprivation maintained a consistent apathetic approach to people. Helfer also found that these infants around nine or ten months of age began to adopt a state of "frozen watchfulness." Erikson (1963 suggests that if there is not a period of equilibrium between mother and child, this may seriously interfere with the establishment of trust between mother and child. Helfer & Kempe (1976) revealed that a mother who consistently attempts to remain available to her infant not only develops a period of equilibrium but also helps establish a sense of trust within the infant. Sander (1976) points out that the basis for normal separation-individuation lies with the mother

and child's initial period of adaptation. A successful adaptation seems based on the mother's endeavors to initiate interaction with her infant and to respond to cues her infant extends to her.

The second hypothesis that neglect would have a negative impact upon the child's separation-individuation process produced mixed results. In the overall sample, (children from 11-36 months of age), where it was possible to examine only developmentally delayed and appropriate behaviors, children of parents high in neglect were significantly less delayed on the separation-individuation measure than were children of parents low in neglect. This difference was significant for the overall sample and approached significance for the subsample (children from 11-23 months of age), where it was possible to examine developmentally delayed, appropriate, and advanced behaviors. At first glance, it appeared in the overall sample that parental neglect had a maturing effect upon the child's separation-individuation. However, inspection of the advanced scores on the subsample showed that children of parents high in neglect tended to receive lower scores on the separation-individuation measure for advanced development than did children of parents low in neglect. Putting these two findings together suggests the following possibility: High parental neglect is associated with pseudomaturity in the child, that is, the child is simultaneously less delayed and less advanced. Theoretically these findings are consistent with Speers & Morter (1980) who suggested that the child who appears to be advanced in development may be maintaining a mask of pseudomaturity. These children who receive minimal physical contact from mother are seen to disavow any need for mother, yet they make certain they have almost constant attention from her. This mixed pattern of behavior is described by Speers & Morter (1980) as pseudomaturity. This would be supportive of the fact that children of parents high in neglect had lower separation-individuation

delayed scores, suggesting that they exhibited less immature or developmentally regressive behavior than children of parents low in neglect. These children also had lower separation-individuation advanced scores, suggesting that they exhibited less developmentally precocious behavior than children of parents low in neglect. It could be that these paradoxical findings are related. It is possible that within the context of general neglect, the child has to learn more on his own resources, resulting in less delay, which are not sufficient for his total socioemotional needs, producing less advancement. This finding is generally inconsistent with the empirical literature on neglect (Young, 1964; Lukianowicz, 1971; Giovannoni & Billingsley, 1974; and Helfer & Kempe, 1976) which points to the delaying effect of neglect on the child's development. Since the support for this proposition is not clearly resolvable in this study, it would seem worthy of further replication before alternative interpretations can be ruled out. It is possible, for example, that these results are explainable in terms of the selectivity of the sample or by the instruments used in this study.

Data relating to the third hypothesis suggested that high neglect and high abuse did not differentially influence the child's separation-individuation although there was a nonsignificant trend suggesting that abuse is more disruptive than neglect. This failure to confirm the third hypothesis may be a function of the sample selected, or of the measures used to estimate parental neglect and abuse or the fact that there is simply no difference.

Suggestions and Recommendations for Future Research

It is recommended that medical and social welfare diagnostic approaches for designating child abuse and neglect be utilized and compared with the SOCS-Neglect and SOCS-Lashing out procedures used in this study. In this

way it will be possible to make a more reasonable judgment about the relative merits of the metrical procedure or use of the measures in this study and clinical judgments used in ordinary procedure.

Another recommendation is that clinical observation and diagnostic strategies for estimating socioemotional development be utilized and compared with the separation-individuation procedures used in this study. In this way it will be possible to evaluate the relative merits of the metrical procedures used in this study and clinical assessment procedures used in ordinary practice.

If the suggested child studies provide findings that are theoretically consistent and support the metrical procedures used in this study, then there are certain practical implications that can be pursued. First, it should be possible to use the measures of child abuse and neglect to help determine the extent to which a child is at risk in terms of abuse or neglect. Early detection along with collaborative information from social agencies and possible medical information might lead to interventions that could significantly reduce the risk potential. Equally, these measures could provide an objective yardstick of the impact of treatment. In this connection, it would be important to evaluate how treatment not only modifies or alters the parents' behavior but also how the child's separation-individuation process continues from the point of intervention through the first three years of life and indeed throughout future development.

Right Start
University of Pittsburgh
Rev. 3. 5/1976

CFID_____

P_____

t____ty____tw_____
059

Appendix A

SOCS-LO

Barbara Sourkes and Jerome Taylor

Rate each item using the following scale:

Not in the least like | Not much like | Somewhat like | Very much like | Exactly like

_____ 1. P gives in to C.

_____ 2. P is impatient with C's progress.

_____ 3. P has verbal blow ups on C.

_____ 4. P's expectations of C are unrealistic.

_____ 5. P spanks C.

_____ 6. P gets angry at C.

_____ 7. P tolerates C's assertion of will.

_____ 8. P lets C have own way.

_____ 9. P tries to persuade more than force C.

_____ 10. P insists that C do things a certain way.

_____ 11. P scolds C.

_____ 12. P gets annoyed when C doesn't follow instructions.

_____ 13. P is gentle with C.

_____ 14. P lets C do things own way.

_____ 15. P threatens to punish C.

_____ 16. P prefers C to play quietly.

_____ 17. P yells at C.

A = 2, 3, 4, 5, 6, 10, 11, 12, 15, 16, 17 _____.

B = 1, 7, 8, 9, 13, 14 _____.

T = A + (60 - B)_____.

Right Start/TCB
University of Pittsburgh

CFID_____

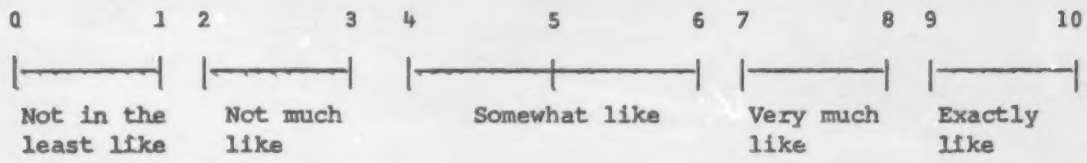
P_____

t_____ty_____tw_____
061

SOCS-NEG

Barbara Sourkes and Jerome Taylor

Rate each item using the following scale:



_____ 1. P is responsive to C's verbal or nonverbal requests.

_____ 2. P considers C's needs to be top priority.

_____ 3. P permits C to watch T.V. late into the night.

_____ 4. P keeps a constant eye on C.

_____ 5. P doesn't feed C at predictable times of the day.

_____ 6. P keeps house orderly.

_____ 7. P maintains a regular nap and bedding down time for C.

_____ 8. P doesn't keep herself up.

_____ 9. P is attentive to C;s crying.

_____ 10. P leaves C unattended.

_____ 11. P keeps C's clothes reasonably clean.

_____ 12. P doesn't make realistic plans.

_____ 13. P sleeps when C is awake.

_____ 14. P is more attentive to the T.V. than to C.

_____ 15. P keeps C clean.

_____ 16. P thinks twice before leaving her child with someone else.

_____ 17. P takes off when things get rough.

A = 3, 5, 8, 10, 12, 13, 14, 17 _____.
B = 1, 2, 4, 6, 7, 9, 11, 15, 16 _____.

T = A + (90-B) _____

Right Start
University of Pittsburgh
Revision 4/1977

Community Organization for TCB

CFID_____

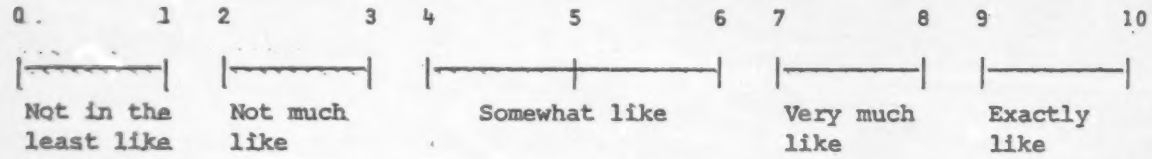
P_____

t_____ty_____ tw_____

Separation-Individuation Scale

Jerome Taylor and Stanley Denton

For each child, rate each item on the following scale:



____1. Sleeps most of the time.
____2. Insists that attachment figure share in the play.
____3. Child gets into everything.
____4. Frets when attachment figure leaves him/her.
____5. spoken to by attachment figure or stranger, primary response is quieting.
____6. Falls asleep while or shortly after eating.
____7. Brings toys to attachment figure for inspection and comment.
____8. Bangs into furniture, knocks over objects, pulls things down.
____9. Smiles at attachment figure but not at strangers.
____10. Smiles vigorously to strangers and to attachment figures.
____11. Awakens only when hungry or in pain.
____12. When child decides to move to a different room or play area, insists that attachment figure tag along.
____13. Climbs up on practically anything.
____14. Withdraws when approached by strangers.
____15. Looks persistently in the face of the person who nurses him/her.
____16. Frets upon awakening.
____17. Seems to have a thousand questions a day for attachment figure.
____18. Finds play in room or area away from attachment figure.
____19. Sobers when spoken to by stranger but not by attachment figure.
____20. Coos and gurgles in response to stimulation by attachment figures or strangers.
____21. Keeps eyes closed during most of feeding.
____22. Child makes persistent requests of attachment figure for help.
____23. Has spills, falls, knocks, bruises, cuts.
____24. Puts stranger through visual "customs inspection."
____25. Awkwardly swipes at or manipulates toys and novel objects within reach.
____26. Cries only when hungry, wet, or soiled.
____27. Brings newspaper, magazines, or books to attachment figure for inspection and comment.

0 1 2 3 4 5 6 7 8 9 10

|—————| |—————| |—————|—————| |—————| |—————|

Not in the least like | Not much like | Somewhat like | Very much like | Exactly like

____. 28. Bumps into things and keeps right on going.
____ 29. Keeps an active eye on the whereabouts of attachment figure.
____ 30. Legs kick and arms flail about when presented with novel object.
____ 31. Seems more interested in feeding than anything else.
____ 32. Constantly asking "What's this?" or "What's that?" type of questions.
____ 33. Moves from one area to the next at astonishing speed.
____ 34. Huddles close to attachment figure as stranger approaches.
____ 35. Spontaneously coos and gurgles.
____ 36. Demands food upon awakening.
____ 37. Always wants to show attachment figure something.
____ 38. Seems constantly on the go.
____ 39. Follows attachment figure around.
____ 40. Greets attachment figure and stranger alike with a smile.
____ 41. Following immediate reaction to chastisement, quick to make up with parent.
____ 42. Parent consistently is able to get child to wait for things without blowing up.
____ 43. Expresses pride in accomplishments through phrases like "Look what I can do!"
____ 44. Responds appropriately with "no" and "yes" to requests made by primary parent.
____ 45. Expresses pride in self through phrases like "I'm a big (good) girl/boy!"
____ 46. C has a sense of time: knows what tomorrow means and is usually able to wait.
____ 47. C is open to bargaining and negotiation with P.
____ 48. P can consistantly reason things out with C.
____ 49. C usually tries to talk things out with P.
____ 50. C tries to "reason" with P.

____NAT: 1, 6, 11, 16, 21, 26, 31, 36

____SYM: 5, 10, 15, 20, 25, 30, 35, 40

____SID: 4, 9, 14, 19, 24, 29, 34, 39

____SIP: 3, 8, 13, 18, 23, 28, 33, 38

____SIR: 2, 7, 12, 17, 22, 27, 32, 37

____SIL: (42, 44, 46, 48, 50, 52, 54, 56, 58, 60) X.80

References

Davis, E. E. An investigation of the communication of mothers with assessed abused potential to their children. Unpublished doctoral dissertation, University of Pittsburgh, 1976.

Gelles, R. J. A profile of violence towards children in the United States. Unpublished paper, University of Rhode Island, 1978.

Gil, D. G. Violence against children. Journal of Marriage and Family. 1971, 33.4, 637-648.

Giovannoni, J. & Billingsley, A. Child Neglect Among the Poor: A Study of Parental Adequacy in Families of Three Ethnic Groups. In J. Leavitt (Ed.) The battered child. Fresno: General Learning Corporation, 1974.

Helfer, R.E., McKenney, J., Kempe, R. Arresting or Freezing the Developmental Process. In R. E. Helfer & R. Kempe (Eds.) Child abuse and neglect in family and community, 1976. Cambridge, Mass.: Ballinger, 55-73.

Lukianowicz, N. Battered children. Psychiatria Clinica. 1971, 4, 257-280.

Mahler, M.S., Pine, F. & Bergman, A. The psychological birth of the human infant. New York: Basic, 1975.

Marans, A. E. & Lourie, R. Hypotheses regarding the effects of child-rearing patterns on the disadvantaged child. In J. Hellmuth (Ed.) Disadvantaged child, 1, New York: Brunner/Mazel, 1967, 19-41.

Sander, L. W. Issues in early mother-child interaction. In E. N. Rexford, L. W. Sander & T. Shapiro (Eds.) Infant Psychiatry. New Haven and London: Yale University Press, 1976, 127-147.

Sourkes, B. M. Parental neglect and lashing out: Maladaptive styles of coping. Unpublished doctoral dissertation, University of Pittsburgh, 1976.

References (cont'd)

Speers, R. W. & Morter, D.C. Overindividuation and underseparation in the pseudo-mature child. In R. Lax, S. Bach & A. Burland (Eds.) Rapprochement. New York: Jason Aronson, 1980, 457-477.

Taylor, J. The development of the differential index. Unpublished manuscript, University of Pittsburgh, 1973.

Taylor, J. Generating measures for styles of coping in systems. Unpublished manuscript, University of Pittsburgh, 1974.

Taylor, J. & Denton, S. Generating measures for styles of coping in systems reviewed. Unpublished manuscript, University of Pittsburgh, 1978.

Waters, E. The reliability and stability of individual differences in infant-mother attachment. Child Development, 1978, 49, 483-494.

Wolff, P. H. & White, B. L. Visual pursuits and attention in newborn infants. Journal of American Academy of Child Psychology, 1965, 4(3), 474-484.

Young, L. Wednesday's Children. New York: McGraw-Hill, 1964

Table 1

Characteristics of the Overall Sample (N=62)

Sample Characteristic	Mean	Median	Standard Deviation	Range
Age of Child (lunar months)	23.14	23.10	7.8	11-36
Birth Order	2.5	2.1	1.8	1-9

Table 2

Characteristics of the Subsample (N=33)

Sample Characteristic	Mean	Median	Standard Deviation	Range
Age of Child (lunar months)	16.8	16.1	4.1	11-23
Birth Order	2.8	2.3	1.8	1-9

Table 3

Basic Psychometric Information and Descriptive Statistics on the S-I Continuum Inventory

Based on an N=24 Mean age of 6.032 Months

Pilot Sample

Categories	Mean	Median	Standard Deviation	Range Lower-Upper	Split-half Reliability	Inter-rater Reliability N=6 pairs
Autism	13.58	7.17	16.69	0 - 56	.94	.88
Symbiosis	22.88	20.00	16.56	0 - 56	.74	.87
Differentiation	34.58	39.00	22.18	0 - 75	.87	.93
Practicing	23.38	30.50	25.87	0 - 78	.87	.99
Rapprochement	12.29	2.50	16.58	0 - 49	.96	.85
Object Constancy	3.03	0.33	5.47	0 - 18	.77	1.0

Table 4

Intercorrelation Matrix on the S-I Continuum

Pilot Sample Based on N=24, Mean Age

of 6.032 Months

	NAT (S-I)	SYM (S-I)	SID (S-I)	SIP (S-I)	SIR (S-I)	SIL (S-I)
NAT (S-I)	1.0	.70	-.68	-.64	-.54	-.33
SYM (S-I)	.70	1.0	-.64	-.66	-.54	-.40
SID (S-I)	-.68	-.64	1.0	.65	.47	.33
SIP (S-I)	-.64	-.66	.65	1.0	.55	.48
SIR (S-I)	-.54	-.54	.47	.55	1.0	.70
SIL (S-I)	-.33	-.33	.32	.48	.70	1.0

Table 5

Descriptive Statistics and Reliability Information on all Measures Used in this Study (N=62)

	Central Tendency		Dispersion		Alpha Coefficients
Measure	Mean	Median	Standard Deviation	Range	
	Total score				
SOCS-LO	44.40	40.50	19.72	5-83	.833
SOCS-NEG	37.40	34.50	19.62	3-108	.881
Separation-Indiv.					
Normal Autism	4.8	0.31	10.81	0-78	.654
Symbiosis	13.74	11.17	14.10	0-77	.716
Differentiation	21.62	20.00	16.15	0-74	.805
Practicing	32.84	35.50	21.58	0-76	.883
Rapprochement	27.34	26.50	17.13	0-70	.820
Object Constancy	22.09	21.20	16.96	0-58	.921

Table 6

Intercorrelations Among Age and Abuse and Neglect Measures Used in this Study (N=62)

	SOCS-NEG	SOCS-LO	Age	S-I Delayed	S-I Appropriate
SOCS-LO	0.4552				
Age	0.1427	0.2641			
S-I Delay Score	0.0605	-0.1719	0.0050		
S-I Appropriate Score	-0.1569	-0.333	-0.3003	0.2212	
S-I Advanced Score	-0.2446	-0.2932	0.1714	0.0999	0.2235

TABLE 7

Adjusted Means and Standard Deviations on Delay and Appropriate Subscores for Groups Low and High in SOCS-LO on Overall Sample N=62

	Low LO		High LO	
Subscore	Mean	S.D.	Mean	S.D.
Delay	31.44	33.31	31.00	29.00
Appropriate	65.00	24.20	50.41	22.00

Table 8

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO on Overall Sample N=62 Delayed Subscore

Source	DF	SS	MS	F	P
LO Groups	1	17.80	17.80	0.07	0.80
Neg. Covariate	1	1163.60	1163.60	4.42	0.04
Age Covariate	1	511.04	511.04	1.94	0.17
Both Covariates	2	1717.99	858.99	3.26	0.04
Error	116	30555.26	263.41		

Table 9

Repeated Measures Analysis of Covariance for S-I Statistics

Associated with Groups Low and High in SOCS-LO

on Overall Sample N=62

Appropriate Subscore

Source	DF	SS	MS	F	P
LO Groups	1	4274.36	4274.36	9.91	.002
Neg. Covariate	1	67.33	67.33	0.16	.693
Age Covariate	1	12570.49	12570.49	29.15	.000
Both Covariates	2	12697.49	6348.74	14.72	.000
Error	116	50028.18	431.28		

Table 10

Adjusted Means and Standard Deviations on Delayed, Appropriate and Advanced Subscores for Groups Low and High in SOCS-LO on Subsample N=33

	Low	LO	High	LO
Subscore	Mean	S.D.	Mean	S.D.
Delay	30	18.52	30	21.14
Appropriate	73	25.33	58	24.18
Advanced	75	45.53	37	30.00

Table 11

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO N=33 Delayed Subscores

Source	DF	SS	MS	F	P
LO Groups	1	157.56	157.56	0.42	0.52
Neg. Covariate	1	930.41	930.42	2.48	0.12
Age Covariate	1	1031.84	1031.84	2.75	0.10
Both Covariates	2	2147.76	1073.88	2.86	0.06
Error	61	22885.32	375.17		

Table 12

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-LO N=33 Appropriate Subscores

Source	DF	SS	MS	F	P
LO Groups	1	2863.00	2862.76	6.52	.013
Neg. Covariate	1	11544.22	11544.21	26.30	.000
Age Covariate	1	36.04	36.04	0.08	.775
Both Covariates	2	11779.90	5889.95	13.42	.000
Error	61	26772.01	438.89		

Table 13

Repeated Measures of Analysis of Covariance for S-I Statistics

Associated with Groups Low and High in SOCS-LO N=33

Advanced Subscores

Source	DF	SS	MS	F	P
LO Groups	1	15198.21	15198.21	10.29	0.00
Neg. Covariate	1	864.60	864.60	0.59	0.45
Age Covariate	1	768.73	768.73	0.52	0.47
Both Covariates	2	1787.69	873.84	0.61	0.55
Error	61	90054.13	1476.30		

Table 14

Adjusted Mean and Standard Deviations on Delayed and Appropriate Subscores for Groups Low and High in SOCS-Neglect on Overall Sample N=62

	Low Neglect		High Neglect	
Subscore	Mean	S.D.	Mean	S.D.
Delay	35.00	13.50	27.00	18.46
Appropriate	59.09	23.00	56.00	24.46

Table 15

Repeated Measure of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG on the Overall Sample N=62

Delayed Subscores

Source	DF	SS	MS	F	P
NEG Groups	1	1558.96	1558.96	6.00	.02
LO Covariate	1	4.46	4.46	0.02	.90
Age Covariate	1	528.93	529.93	2.03	.16
Both Covariates	2	529.78	264.89	1.02	.37
Error	115	29984.25	260.73		

Table 16

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG on Overall Sample N=62

Appropriate

Source	DF	SS	MS	F	P
NEG Group	1	231.15	231.15	0.54	.460
LO Covariate	1	3056.63	3056.63	7.17	.009
Age Covariate	1	13076.30	13076.30	30.66	.000
Both Covariates	2	16831.25	8415.62	19.73	.000
Error	115	49043.54	426.47		

Table 17

Adjusted Means and Standard Deviations on Delayed, Appropriate and Advanced Subscores for Groups Low and High in SOCS-Neglect on Subsample N=33

	Low Neglect		High Neglect	
Subscore	Mean	S.D.	Mean	S.D.
Delay	34	15	27	23
Appropriate	65	26	66	26
Advanced	57	36	51	46

Table 18

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-Neglect on Subsample N=33

Delayed Subscores

Source	DF	SS	MS	F	P
NEG Groups	1	969.17	969.72	0.44	.508
LO Covariate	1	922.00	922.00	2.54	.116
Age Covariate	1	159.00	159.00	2.42	.125
Both Covariates	2	1135.05	568.00	0.42	.522
Error	60	22881.00	381.34	1.49	.234

Table 19

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG On Subsample N=33 Appropriate Subscores

Source	DF	SS	MS	F	P
NEG Groups	1	2.02	2.02	0.00	.946
LO Covariate	1	10623.00	10623.00	23.97	.000
Age Covariate	1	2833.46	2833.46	6.39	.014
Both Covariates	2	14230.00	7115.00	16.05	.000
Error	60	26591.34	443.18		

Table 20

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups Low and High in SOCS-NEG On Subsample N=33 Advanced Subscores

Source	DF	SS	MS	F	P
NEG Groups	1	858.00	858.00	0.57	.452
LO Covariate	1	939.18	939.19	0.63	.432
Age Covariate	1	15147.00	15147.00	10.10	.002
Both Covariates	2	15662.00	7831.00	5.22	.008
Error	60	89965.12	1499.41		

Table 21

Adjusted Means and Standard Deviations on Delayed, Appropriate and Advanced Subscores for Groups High in SOCS-Lashing Out and High in SOCS-Neglect:

	High LO		High NEG	
Subscore	Mean	S.D.	Mean	S.D.
Delay	37	26	29	24
Appropriate	55	25	60	27
Advanced	38	30	39	34

Table 22

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups High in SOCS-Lashing Out and High in SOCS-Neglect:

Delayed Subscores for High LO and High NEG

Source	DF	SS	MS	F	P
Mean	1	2465.00	2465.00	3.82	0.06
LO-NEG Groups	1	483.00	483.00	0.72	0.39
First Covariate	1	56.00	56.00	0.19	0.77
Error	31	20001.00	645.20		

Table 23

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups High in SOCS-Lashing Out and High in SOCS-Neglect: Appropriate Subscores for High LO and High NEG

Source	DF	SS	MS	F	P
Mean	1	16861.00	16861.00	29.10	0.00
LO-NEG Groups	1	226.39	226.39	0.39	0.53
First Covariate	1	3231.28	3231.20	5.58	0.02
Error	31	17964.00	579.47		

Table 24

Repeated Measures of Analysis of Covariance for S-I Statistics Associated with Groups High in SOCS-Lashing Out and High in SOCS-Neglect: Advanced Subscores for High LO and High NEG

Source	DF	SS	MS	F	P
Mean	1	933.15	933.15	0.89	0.35
LO-NEG Groups	1	2.01	2.01	0.00	0.97
First Covariate	1	370.00	370.00	0.35	0.56
Error	31	32400.00	1045.16		

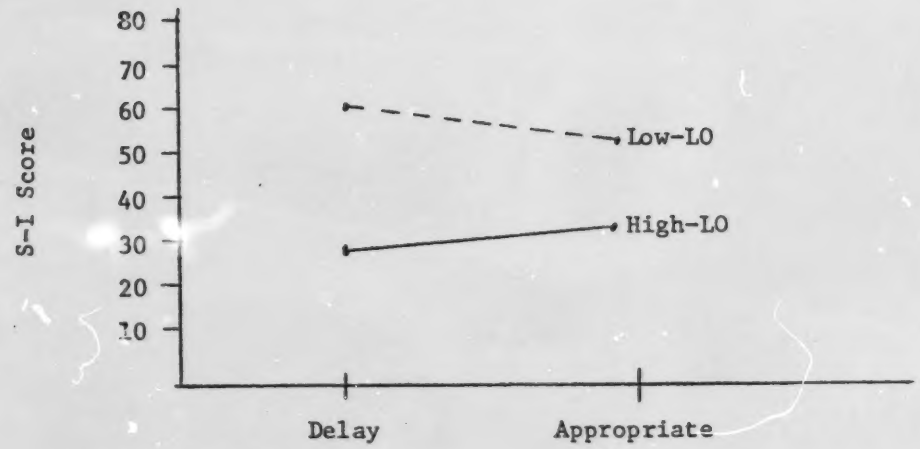


Figure 1. Difference Between High and Low SOCS-LO Groups on S-I Delay and Appropriate Components on Overall Sample N=62.

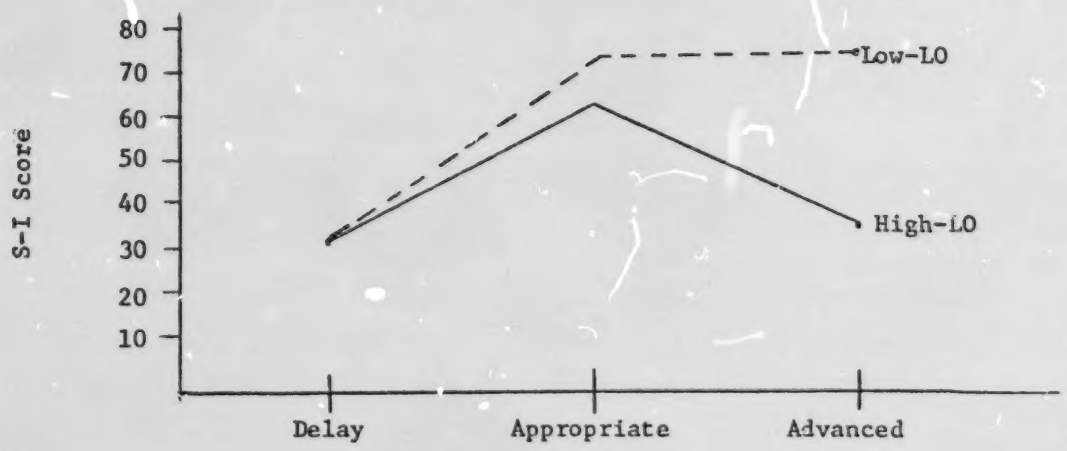


Figure 2. Difference Between High and Low SOCS-LO Groups on S-I Delay, Appropriate and Advanced Components on Subsample N=33.

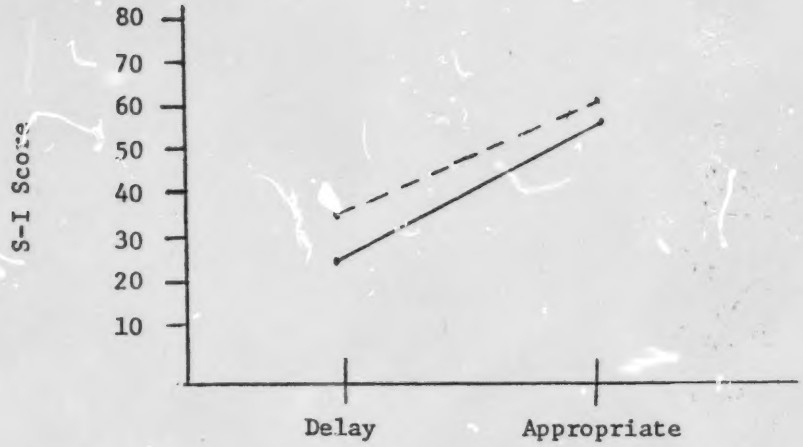


Figure 3. Difference Between High and Low SOCS-Neglect Groups on S-I Delay, Appropriate Components on Overall Sample N=62.

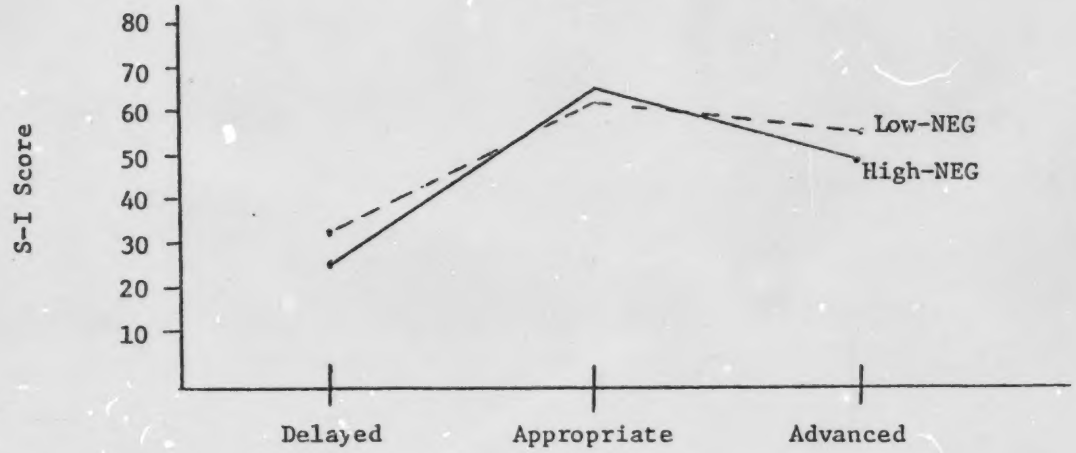


Figure 4. Difference Between High and Low SOCS-Neglect Group on S-I Delayed, Appropriate and Advanced Components on the Subsample N=33.

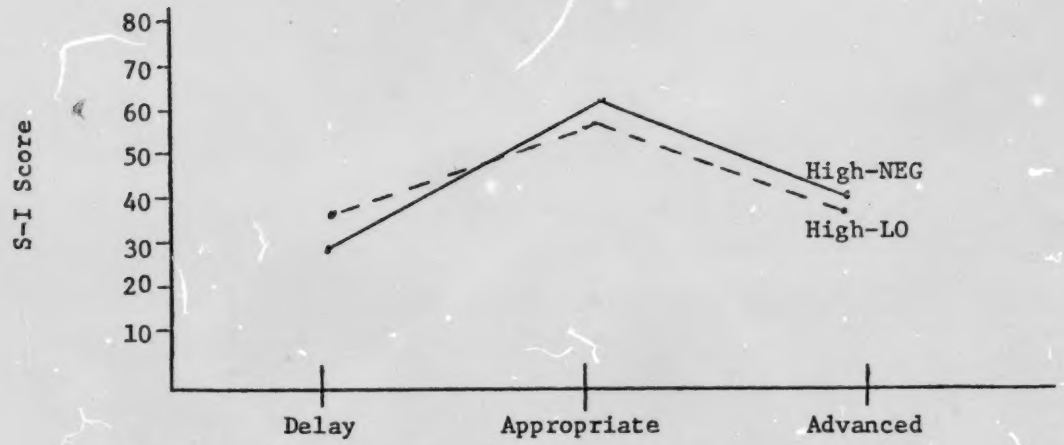


Figure 5. Difference Between High SOCS-Neglect and High SOCS-Lashing Out Broups on S-I Delay, Appropriate and Advanced Components

AN INVESTIGATION OF THE PREVAILING PRACTICES OF SELECTED SCHOOL DISTRICTS IN THE UNITED STATES WITH REGARD TO CONTINUOUS RESIDENCY REQUIREMENTS FOR PUBLIC SCHOOL EMPLOYEES

By

Joseph E. Michaels

Educational Administration

University of Pittsburgh

AN INVESTIGATION OF THE PREVAILING PRACTICES OF SELECTED SCHOOL DISTRICTS IN THE UNITED STATES WITH REGARD TO CONTINUOUS RESIDENCY REQUIREMENTS FOR PUBLIC SCHOOL EMPLOYEES

by

Joseph E. Michaels

University of Pittsburgh

The Problem

The purpose of this study was to investigate the prevailing practices of selected school districts in the United States with regard to continuous residency requirements for public school employees.

Objectives of the Study

1. To identify, tabulate, and analyze the rationale(s) of large school districts for enacting continuous residency requirement regulations.

2. To determine whether public school employees receive extra benefits or considerations for residing in the school district in which they are employed.

3. To identify and analyze Appellate Court cases pertinent to continuous residency requirement regulations for school district employees and municipal employees.

4. To determine the influence of the U.S. Supreme Court decision in the McCarthy v. Philadelphia Civil Service Commission case with regard to school districts adopting continuous residency requirement regulations for public school employees.

5. To determine whether residency is a bargaining item in contract negotiations between school boards and

school district employees with union or organizational representation.

6. To ascertain if there is a nationwide trend toward adoption of continuous residency requirements for public school employees in the five largest school districts of each state.

Methodology and Procedures

A combination of general methods was employed in this study. The descriptive survey method was used to obtain and interpret current practices of school districts with regard to continuous residency requirements for public school employees. The element which concerned the legal aspect of the problem was addressed by utilizing the documentary legal analysis method of research.

To reach the study's objectives of determining the prevailing practices of selected school districts in the United States with regard to continuous residency requirement regulations for public school employees six steps were taken:

1. A list of the five largest school districts of each state was completed.

2. A survey questionnaire was constructed.

3. A pilot study was conducted in the Pittsburgh School District where a continuous residency requirement regulation is in effect.

4. The questionnaire with attached cover letter was sent to the Superintendent of each of the selected school districts in the United States.

5. The information obtained from the questionnaire was tabulated and classified according to five groups of

student enrollment. In addition, the questionnaire information was tabulated and classified according to the nine geographical divisions and four regions of the United States, as used by the Bureau of Census.

6. The briefs of Appellate Court decisions relevant to continuous residency requirement regulations from the year 1900 to the present were used to analyze the history of continuous residency requirement regulations for public school employees.

Summary, Findings, and Conclusions

This study was designed to determine the prevailing practices of selected school districts in the United States with regard to continuous residency requirements for public school employees. A review of the literature during the mid-1970s suggested that there was a significant movement on the part of large school districts to enact residency regulations. This study was delimited to the five largest school districts in each state, and a review of Appellate Court decisions relevant to residency requirements for public school employees. However, it was necessary to consider key cases involving municipal employees, since court decisions involving residency requirements were utilized by the courts in rendering decisions that affected both municipal and public school employees.

An in-depth analysis of the Appellate Court decisions pertinent to residency requirement regulations by an educator can serve as an illuminating source of information

Figure 1

CENSUS REGIONS AND GEOGRAPHIC DIVISIONS OF THE UNITED STATES

U.S. DEPARTMENT OF COMMERCE

SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION, BUREAU OF THE CENSUS

for school districts contemplating enacting a residency regulation. This aspect of the study coupled with the survey report presents a comprehensive view of the issue and its many ramifications.

The instrument used to survey the population of the study consisted of twenty-four questions relevant to continuous residency requirement regulations for public school employees. The instrument was mailed to each of the selected five largest school districts in the United States and the District of Columbia. A total of two hundred forty-seven questionnaires was dispatched. A total of one hundred ninety-seven questionnaires was returned; this amounted to a return of 79.8 percent.

Consultation for statistical analysis was provided by the Office of Measurements and Evaluation at the University of Pittsburgh. Statistical analyses employed in this study included one-way and two-way frequency distribution.

Findings

The nationwide survey which involved participants from the five largest school districts in each continental state, the state school system of Hawaii, and the District of Columbia school system, revealed the following:

a. Continuous residency requirement regulations are not prevalent in large school districts in the United States.

b. Continuous residency requirement regulations have been an issue in 46 or 24 percent of the large school districts during the 1970s.

c. The most significant reasons some school boards have not adopted continuous residency requirement regulations are (in descending order of importance):

(1) The school boards have not favored them.

(2) The school boards wish to avoid litigation.

(3) There is a lack of support from the community and administration.

d. School boards that have adopted continuous residency requirement regulations asserted the following rationales for doing so (in descending order of importance):

(1) A personal stake in the progress of the community will be fostered in each employee.

(2) There will be an enhancement of the quality of employee performance through greater personal knowledge of the environment of the school district.

(3) The community will enjoy the economic benefits which will accrue from local expenditures of employee salaries.

e. School boards that enact continuous residency requirement regulations generally enforce them.

f. School boards do not require employees living outside the school district when a continuous residency requirement regulation is adopted to move into the district unless they are promoted to an administrative position.

g. Large school districts with a continuous residency requirement regulation generally allow from one to six months for employees to establish a bonafide residency in the school

district following hiring.

h. Most large school districts that have a continuous residency requirement regulation indicated that their policy does not include all school district employees.

i. Most large school districts with a limited continuous residency requirement regulation are most likely to include the superintendent and line administrators--e.g. principals, assistant superintendents, vice principals, assistant principals and deans.

j. Large school districts do not generally extend extra benefits or considerations-- e.g., salary or favorable work assignments--for residing in the school district.

k. Eligibility for promotion is the one consideration an employee can receive for residing in the school district.

l. Three, or 18.8 percent of the school districts that adopted a continuous residency requirement regulation were influenced by the Supreme Court decision in McCarthy v. Philadelphia Civil Service Commission (March 1976).

m. Continuous residency requirement regulations are likely to be challenged by school employees.

n. During the 1970s, three, or 18.8 percent of the school districts with a continuous residency requirement regulation in effect considered revoking their policy.

o. Major reasons considered for revocation of continuous residency requirement regulations were (in descending order of importance):

(1) The residency policy was not necessary.

(2) Litigation was to be avoided.

(3) The community insisted.

(4) There was an unavailability of housing.

p. Only one district reported dismissing employees for non-compliance with the district's residency policy.

q. Continuous residency is a bargaining item in collective negotiations involving professional and non-professional employees in seven, or 43.7 percent of the school districts represented by a bargaining unit.

r. Large school districts very seldom include a statement of preference for residency with all announcements of position vacancies.

s. Large school districts very seldom include a statement requiring continuous residency with all announcements of position vacancies.

t. Continuous residency requirement regulations are most like to be found in school districts of the following three classifications:

(1) 100,000 plus student enrollment

(2) 25,000-49,999 student enrollment

(3) 1-9,999 student enrollment

u. Continuous residency requirement regulations are most likely to be found in the following geographic divisions of the United States:

(1) New England

(2) East North Central

v. No particular geographic region of the United States has a disproportionate amount of large school districts

with continuous residency requirement regulations for public school employees.

w. There is a trend for state legislatures to pass legislation prohibiting continuous residency requirement regulations for public school employees.

x. There is a trend for large school districts to enact continuous residency requirement regulations for public school employees.

2. The analysis of the court cases pertinent to continuous residency requirement regulations for public school employees revealed the following:

a. McCarthy v. Philadelphia Civil Service Commission established that no fundamental rights are infringed by the enforcement of a continuous residency requirement regulation.

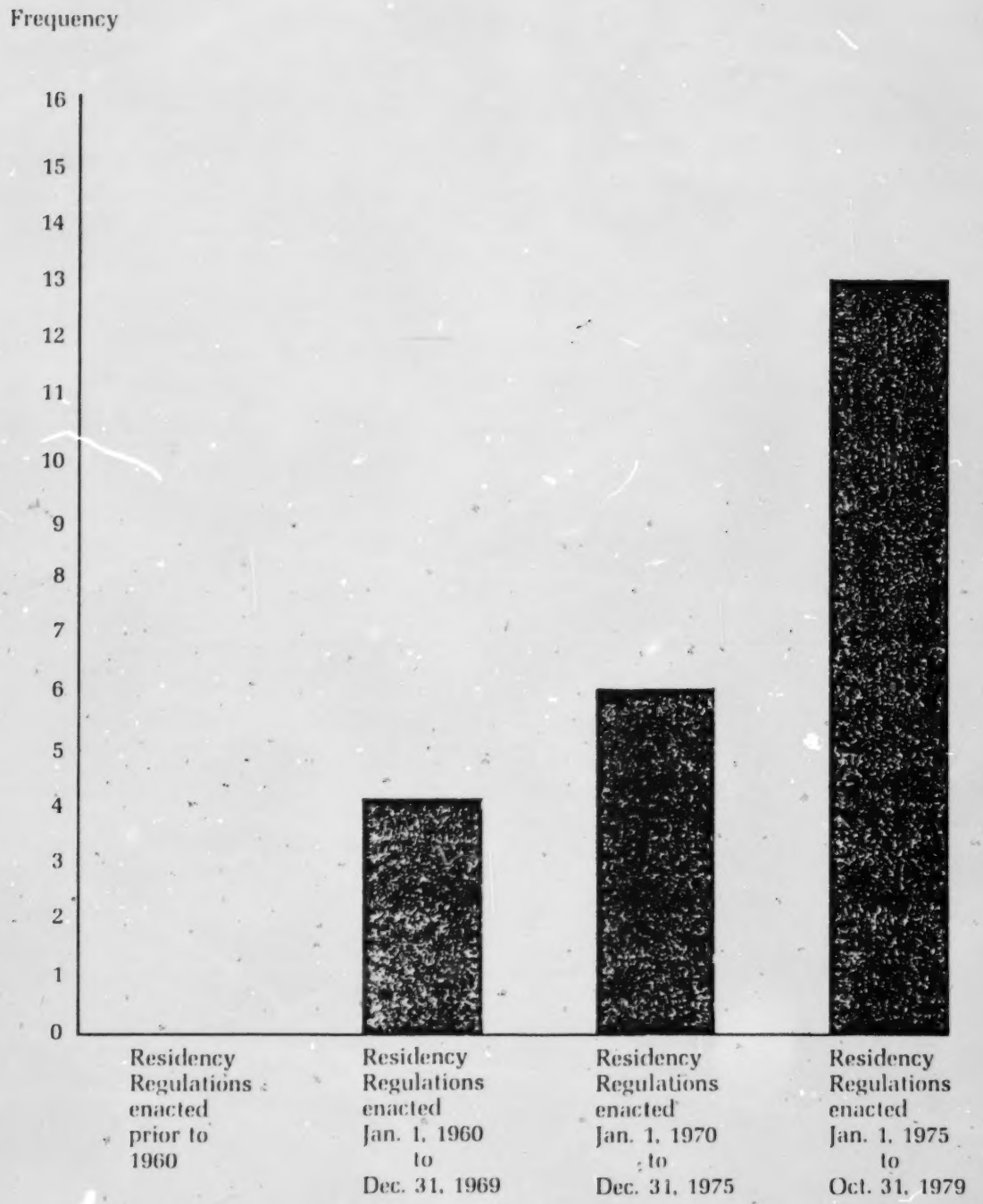
b. McCarthy deflated much of the argument supporting the inclusion of a right to commute or a right to live and work where one chooses within the fundamental right to travel.

c. The affirmative decision rendered in McCarthy has made it the "controlling" case in all matters relating to continuous residency requirement regulations for public school employees where plaintiffs challenge on the basis of a violation of an individual's right to travel interstate or intrastate.

d. McCarthy has established that the right to commute even across state lines is not equated with the

Figure 2

ENACTMENT OF CONTINUOUS RESIDENCY REQUIREMENT REGULATIONS IN SCHOOL DISTRICTS FOR THE TIME PERIOD JANUARY 1960 TO OCTOBER 1979



fundamental right to travel, regardless of whether this fundamental right is viewed as encompassing interstate and intrastate travel.

e. McCarthy has reaffirmed the view that continuous residency requirements do not violate the fundamental right to travel so as to invoke the "compelling interest" test.

f. The "rational basis" test has become the proper test for the courts to apply in determining the constitutionality of continuous residency requirements since it has been asserted by the courts that no fundamental rights are being violated.

g. There has been an increase in the number of cases pertinent to continuous residency requirement regulations for public school employees during the 1970s.

h. Thirty-one cases were investigated concerning continuous residency requirement regulations for public school and municipal employees. Of the eleven federal cases investigated, two appeared before the Supreme Court of the United States, and all of the federal cases have been adjudicated since 1970.

i. The courts have asserted that as long as a continuous residency requirement regulation does not render it impossible for employees to comply and retain employment it cannot be said to deprive them of any property right.

j. Courts are not impressed when plaintiffs present evidence that the reason(s) put forth by defendants for establishing continuous residency requirement regulations

are not well founded. The feeling of the courts is that the Constitution is not violated as long as a law is not premised upon a patently irrational basis.

k. Continuous residency requirement regulations do not violate the due process clause of the U.S. Constitution.

l. Continuous residency requirement regulations do not violate an employee's right to equal protection as stated in the Fourteenth Amendment to the U.S. Constitution.

m. The U.S. Supreme Court has not heard a residency case based on an allegation of a violation of the equal protection clause of the Fourteenth Amendment.

n. The Supreme Court of New Hampshire has on two occasions ruled that ordinances requiring all employees of a school system to reside within the boundaries of a city are unconstitutional.

Conclusions

Continuous residency requirement regulations are not new to the American scene. Such regulations for municipal employees and public school employees have been in existence since the turn of the twentieth century, but did not attact serious attention until the 1970s. Many municipalities had residency regulations, but had neglected to enforce them; others in an effort to stem the flow of middle class employees from the cities enacted new ordinances requiring all new employees to become residents, usually within six months of hiring.

The study revealed that although there is not a

prevalence of continuous residency requirement regulations in the large school districts of the United States, there is a trend for large school districts to enact residency regulations. The irony of this development is the fact that many states have passed legislation prohibiting continuous residency regulations, or are actively debating the issue.

The activity on the part of numerous state legislatures during the 1970s in reference to this matter is suggestive, at least, of the concern and power being vectored toward eliminating continuous residency regulations for public school employees.

School boards, although empowered to enact continuous residency requirement regulations, are treading carefully, as indicated by the number of school districts that reported a residency requirement--(8.1 percent). It should be noted, however, that the writer in his preliminary investigation of the issue had confirmation from the Council of the Great City Schools that a number of the cities that were targeted for inclusion in the study had continuous residency regulations in effect. Five of these school districts failed to respond, or decided not to participate. These districts would bring the total of known school districts with a regulation to twenty-one, which would adjust the percentage of school districts with a regulation to 10.7 percent. The percentage of school districts with a regulation is even higher when one excludes the thirty-one school districts that responded, but were located in states that prohibit continuous residency requirement regulations. When this is taken into account, the percentage increases to 12.7

percent.

School boards that have enacted residency regulations indicated that they believe that a resident employee will be inclined to do a better job since the individual will have a vested interest in the community. On the other hand, school boards that have rejected the idea of residency regulations have stated that they simply did not favor them, or that they wished to avoid litigation.

The study revealed a clear distinction between the way school boards deal with continuous residency for administrators, and other school district employees. Numerous respondents indicated that although their districts did not have an official residency policy, prospective administrative employees were informed that is was desired that all administrators reside in the district.

It is obvious that most job-seeking administrators, mindful of the scarcity of administrative positions would not be inclined to eliminate themselves from consideration for a position by ignoring the school board's wishes.

In light of the fact that administrators generally are not as well represented by organized bargaining units, it is apparent that school boards can dictate their wishes to administrators with regard to residency. By the same token, school employees not represented by a bargaining unit can also be similarly affected by an unwritten, informal residency policy.

Collective bargaining, where mandated by state law has proved to be a viable means of combating continuous res-

idency regulations, as evidenced by the developments of the Detroit Police Officers Association's effort to neutralize the city's residency regulation. The Association, having lost their appeal to the U.S. Supreme Court proceeded to employ a new tactic--collective bargaining. The Officers Association was successful in convincing the court that residency is a "term or condition of employment," and therefore a mandatory subject of bargaining. The court in deciding in favor of the Officers Association made it clear that continuous residency is a mandatory subject of bargaining.

Whenever collective bargaining is mandated it is likely that continuous residency will be a bargaining item, except in those states that have passed legislation prohibiting such regulations.

The Supreme Court decision in McCarthy provided the opportunity for school districts to adopt residency regulations without the fear of having them rendered unconstitutional by the courts.

The pivotal point in the issue of continuous residency is that the courts have consistently asserted that where no constitutional right is involved, the general "rational basis" test, and not the "compelling interest" test, is the proper test to apply. This precedent established in Wardwell v. The Board of Education of the City School District of the City of Cincinnati, and referred to in many subsequent cases supporting the right of school districts to impose continuous residency requirement

regulations has effectively stopped any challenges alleging a violation of one's constitutional right to travel.

All post McCarthy cases, with one exception have upheld the right of school districts to impose continuous residency requirement regulations, thus it is evident that further challenges are not likely to be successful.

This study presented a timely examination of the issue of continuous residency for public school employees from three perspectives, namely: (1) the school boards, (2) certain state legislatures, and (3) the courts.

Since the Supreme Court of New Hampshire has maintained its posture since the early 1970s that continuous residency regulations for public school employees violate the constitutional rights of an individual the issue is still alive, and may spark another appeal to the U.S. Supreme Court.

A COMPARISON OF TWO THEORIES OF LEARNING

By

Margaret Rusnock

Secondary Education

University of Pittsburgh

TABLE OF CONTENTS

INTRODUCTION. 1

AUSUBEL'S THEORY OF LEARNING. 2

AN ADVANCE ORGANIZER LESSON 9

BRUNER ON LEARNING AND INSTRUCTION. 14

A COMPARISON OF THE TWO THEORIES. 24

INTRODUCTION

Educators, learning theorists and psychologists in their search for an all inclusive theory of learning and instruction have developed several different viewpoints on the teaching/learning process. Each theory is important to education to the extent that it suggests ways of improving instruction but no one theory is considered to be a panacea.

Two educational theorists, David P. Ausubel and Jerome Bruner, present separate theories which in many ways are similar but also have differences. Ausubel's theory of meaningful verbal learning promotes an expository mode of teaching along with a hierarchially arranged curriculum structure. Learning through discovery and the use of a spiral curriculum are proposed by Bruner. This paper attempts to present their theories, compare and contrast their ideas and indicate the applicability of their theories to the teaching and learning of mathematics.

AUSUBEL'S THEORY OF LEARNING

David P. Ausubel's theory of meaningful verbal learning came at a time when many educators were equating reception learning with rote learning. These educators proposed that meaningful learning occurs when there is an emphasis on students' direct active experiences in learning such as in the discovery approach or in laboratory work. They believed that a teacher cannot "give" meaningful generalizations to students but that they can be obtained only as an end result of problem solving. One must examine the theoretical structure presented by Ausubel in order to understand his position on the promotion of meaningful reception learning through proper expository teaching.

Ausubel's theory is concerned with the organization of information in the mind, the mental processing of information, and the organization of curriculum. Along with his theory of meaningful verbal learning he provides a model in which he believes the learning process can be optimized by teachers. He sees the expository mode of instruction as being most efficient. Through proper presentation of specifically sequenced material a teacher enables a student to internalize new information. He contends that the long range goal of education is student acquisition of a clear, stable and organized body of knowledge, a goal he believes is most effectively achieved through meaningful reception learning.

Meaningful Learning

Ausubel describes meaningful learning in this way:

> By 'meaningful learning' we refer primarily to a distinctive kind of process, and only secondarily to a meaningful learning outcome--attainment of meaning--that necessarily reflects

> the completion of such a process. Meaningful learning as a process presupposes in turn both that the learner employs a meaningful learning set and that the material he learns is potentially meaningful to him. (Ausubel, 1961, p.18)

Thus, new material must be potentially meaningful to the student and its potential meaningfulness is determined by two factors.

First the new idea to be learned and relevant ideas in the cognitive structure must be nonarbitrarily relatable, that is, there must be some reasonable basis for establishing a relationship between them. Nonarbitrary incorporation of an idea into an appropriate part of the cognitive structure implies that the new idea becomes an integral part of an established ideational system. Nonsense syllables and sets of random numbers would be examples of arbitrary tasks for there is nothing in a student's cognitive structure to which he might attach these ideas. On the other hand, if the new concept is that of an isosceles triangle, a student with an understanding of the general concept of triangle would be able to relate the new concept of isosceles triangle in an nonarbitrary way to the existing general concept.

The second factor determining the potential meaningfulness of an idea is its substantive (nonverbatim) relatability to what the student already knows. A new idea is substantively relatable to that in the cognitive structure if the relationship between the new idea and relevant information in the student's mind is such that the new idea can be expressed in synonomous language and still convey the same meaning. Using Ausubel's example, the concept stated as "an equilateral triangle is a triangle with three equal sides" is not changed if it is reworded as "an equilateral triangle is one that has all of its sides equal." The concept is substantively relatable to what the student already knows if he can translate it into his

own words and does not have to rely on rote memorization. More information can be understood and retained if the student is required to assimilate only the substance of an idea rather than learning the exact words used.

In addition to need for material to have potential meaningfulness, a second condition must be met if meaningful learning is to occur. The student's intent must be considered. Meaningful learning according to Ausubel:

> ...presupposes both that the learner manifests a meaningful learning set, that is, a disposition to relate the new material nonarbitrarily and substantively to his cognitive structure and that the material he learns be potentially meaningful to him. (Ausubel, 1969, p.331)

If the student's intent is to internalize the material as an end in itself without associating it with previous knowledge then rote learning will take place.

To summarize meaningful learning requires three conditions:

1. The material must be nonarbitrarily and substantively relatable to some hypothetical cognitive structure.
2. A particular student must have relevant information in his cognitive structure to which he can relate the new material.
3. The same student must have the intent to relate the new idea to those in his mind in a nonarbitrary and substantive way.

If these conditions are met a meaningful learning outcome is possible.

Readiness

Other conditions must be considered if meaningful reception learning is to occur. The degree of cognitive maturity a student has attained is a determining factor in his ability to profit from reception learning. Usually students of junior high school age and older students have reached the abstract stage of cognitive development, that of formal operations as defined by Piaget. Students in this stage of development do not have to rely on concrete experiences to form new concepts or principles and are able to proceed

directly to a level of abstract understanding that is higher than the intuitive level. They can benefit from proper expository teaching and engage in meaningful reception learning.

In addition to readiness in terms of developmental level, students must have readiness in terms of previously acquired subject matter knowledge. If they do not have the appropriate mathematical background for the present learning task they may not be able to learn from expository teaching. A student must have the intellectual capacity, ideational content and experiential background to learn potentially meaningful material through reception learning.

Organization of Information

Ausubel describes the mind as "an information-processing and information-storing system that is similar to the conceptual structure of an academic discipline." (Joyce and Weil, 1976, p.180) He sees both content structure and cognitive structure as having a hierarchial organization of ideas in which the most inclusive concepts are at the apex (top) of the structure and subsume more detailed and specific concepts. As the information processing system of the mind receives new information it rearranges itself to accommodate this material. If the new idea seriously conflicts with those in the mind or is not linked to existing ideas it may not be incorporated or retained.

It is the job of the teacher to organize the sequence of ideas for presentation so that ideational anchors are provided. Ausubel suggests two principles which should govern the programming of content. They are progressive differentiation and integrative reconciliation. He explains progressive differentiation as follows:

> ...the most general and inclusive ideas are presented first, and are then progressively differentiated in terms of detail and specificity.... The two assumptions we are making here are, in other words, (1) that it is less difficult for human beings to grasp the differentiated aspects of a previously

> learned more inclusive whole than to formulate the inclusive whole from its previously learned differentiated parts and (2) that an individual's organization of the content of a particular subject-matter discipline in his own mind consists of a hierarchial structure in which the most inclusive ideas occupy the apex of the structure and subsume progressively less inclusive and more highly differentiated propositions, concepts, and factual data. (Ausubel and Robinson, 1969, p.168)

This principle usually is not operational in textbooks. In most mathematics textbooks information is segregated by topics into separate chapters on the basis of relatedness without reference to their level of inclusiveness. Thus students learn details before they develop relevant subsumers. Through progressive differentiation a student would first be given general ideas that could act as anchorage for the more detailed ideas that would follow.

The second principle, integrative reconciliation, "refers to the explicit attempt to point out significant similarities and differences and to reconcile real or apparent inconsistencies between successive ideas presented in a sequential arrangement." (Ausubel and Robinson, 1969, p.169) Earlier learned ideas act as subsumers for ideas presented later and if these later ideas are to be learned they must be discriminable from the established ideas in the cognitive structure. This principle also applies when the content is arranged along parallel lines where the difficulty may not be discriminability but may be a contradiction between the established ideas and new information.

For example the concept of a quadrilateral is a general and inclusive one which can be progressively differentiated into special types of quadrilaterals. Integrative reconciliation would be applied to distinguish quadrilaterals from rectangles and rectangles from parallelograms. If these principles are not employed and a student's established idea of parallelogram conflicts with a newly presented idea of rectangle, he may dismiss the new idea by deciding that rectangles and parallelograms are the same. Another alternative

that he may choose is to compartmentalize the new idea as a separate entity thereby losing anchorage to relevant subsuming ideas.

Advance Organizers

To implement the programming principles of progressive differentiation and integrative reconciliation Ausubel proposes "the use of appropriately relevant and inclusive organizers that are maximally stable and discriminable from related conceptual systems in the learner's cognitive structure." (Ausubel, 1963, p.81) These organizers may be described in this way:

> Advance organizers consist of introductory material at a higher level of abstraction, generality and inclusiveness than the learning task itself...organizers provide relevant ideational scaffolding, enhance the discriminability of the new learning material from previously learned related ideas, and otherwise effect integrative reconciliation at a level of abstraction, generality and inclusiveness which is much higher than the learning material itself. To be maximally effective they must be formulated in terms of language, concepts and propositions already familiar to the learner and use appropriate illustrations and analogies. (Joyce and Weil, 1976, p.184)

Advance organizers are different from overviews and summaries in that the latter are at the same level of abstraction as the learning material that follows. Summaries do not provide relevant subsumers to which later ideas can be joined.

Two types of organizers are presented by Ausubel--expository organizers and comparative organizers. Expository organizers are employed to introduce unfamiliar material to the students by furnishing them with a structure to which later detailed information can be attached. Thus, as the more specific ideas are presented the student will have something in his cognitive structure to which he can relate these detailed ideas. Comparative organizers are used to integrate new ideas with similar ideas in a student's mind. They are also used to discriminate new ideas from existing ideas in the students

cognitive structure in order to prevent confusion caused by the similarity between them.

Advance organizers are usually presented in the expository mode of instruction but they may also be in the form of games, simulations, field trips, etc. What is important according to Ausubel is that they serve three main purposes:

> Advance organizers probably facilitate the incorporability and longevity of meaningful verbal material in three different ways. First, they explicitly draw upon and mobilize whatever relevant subsuming concepts are already established in the learner's cognitive structure and make them part of the subsuming entity. Thus not only is the new material rendered more familiar and meaningful but the most relevant ideational antecedents are also selected and utilized in integrated fashion. Second, advance organizers at an appropriate level of inclusiveness provide optimal anchorage. This promotes both initial incorporation and later resistance to obliterative subsumption. Third, the use of advance organizers renders unnecessary much of the rote memorization to which students resort because they are required to learn the details of a discipline before having available a sufficient number of key subsuming concepts. (Ausubel, 1963, pp.85-86)

Application to Mathematics Learning

Meaningful learning in mathematics requires that the students "understand long, sequentially organized systems of propositions." (Ausubel and Robinson, 1969, p.86) If an idea is missing from this continuity of ideas the student may resort to rote learning for he may not have the ideational scaffolding on which to anchor the new ideas. Thus because of the sequential nature of mathematics learning, the use of advance organizers is appropriate.

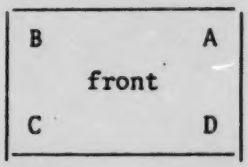
AN ADVANCE ORGANIZER LESSON

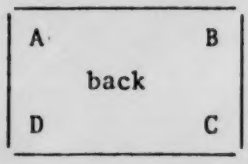
The advance organizer for this lesson begins with an introduction of the concept of a mathematical system. Although mathematical systems are usually presented symbolically, the concept of such a system can be presented in an abstract, general and inclusive way without being highly symbolic. This lesson might be appropriate for students in junior high school who may or may not have arrived at the stage of formal operations.

The mathematical system, group, is being introduced 1) to give the students a sense of the general structure of mathematics, 2) to show the students the limitations of the system of natural numbers in that it does not form a group under addition, and 3) to have the students determine what additional numbers must be included with the natural numbers so that the new number system (integers) do form a group under addition. This lesson will take the entire class period.

An Introduction to the System of Integers

A mathematical system must have three features. It must have a set of elements, operations and relations. We are going to look at a special mathematical system to determine its properties. First we must have a set of elements. The elements we will use can be produced by cutting out a three inch square of paper which should be labeled "front" and "back." The vertices of the square should be labeled as follows:

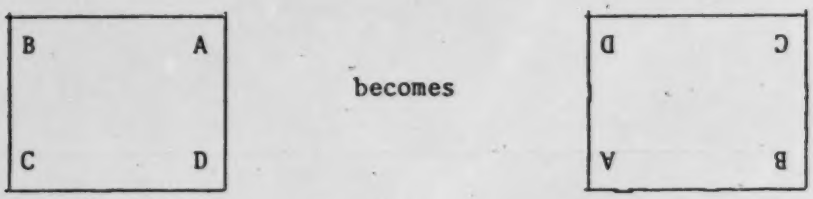




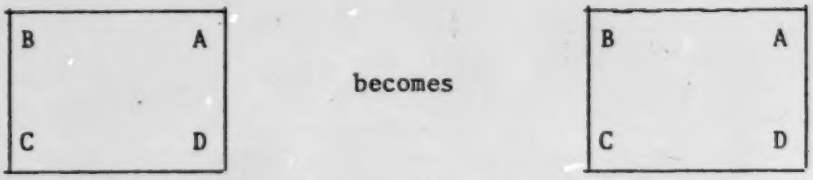
The elements will be certain movements of the square. The operation, $\odot$, will consist of following one movement by another. The relation, equality, will be identity of the vertex positions.

The permitted elements (movements) are:

R_{180}: A rotation of the square through 180^{o} about to its center.



R_{360}: A rotation of the square through 360^{o}.



(Notice that the position of the vertices are the same)

H_{flip}: A flip about a horizontal line through the center of the square.

V_{flip}: A flip about a vertical line through the center of the square.

Then ($R_{180} \odot V_{flip}$) is that element which results when R_{180} is followed by a V_{flip}. Actual experimentation will show that the result is an H_{flip}.

Have the students try this with their squares. Next have the students complete this table to find all possible combinations.

$\odot$	R_{360}	R_{180}	V_{flip}	H_{flip}
R_{360}				
R_{180}				
V_{flip}				
H_{flip}				

To have the students determine the postulates of this system, the teacher might ask probing questions that would lead to the closure property, the existence of an identity and an inverse and the associative property. Explain to the students that these elements form a mathematical system called a group. The elements of the system having a well defined operation and an equivalence relation must satisfy the above named postulates to be a group.

Have the students go through an example of a system that has the natural numbers as elements, addition as the operation and equality as the relation. Setting up a limited addition table should lead the students to the conclusion that this "almost" forms a group. The existence of an inverse is not satisfied.

Now the teacher should ask the students to decide if additional elements might be included in this second example so that it could satisfy all of the group postulates. Students should see the need for negative integers to satisfy the inverse postulate. They may test this theory for each postulate and should then conclude that the integers do form a group under addition.

This expository organizer indicates the need for negative integers and should be followed by more detailed information concerning the system of integers. In a sense this organizer also functions as a comparative organizer for it shows the similarities and differences between the natural numbers and the integers with respect to a group.

Another version of this organizer might be used with older students who are in the abstract stage of development. These students could be presented with the same information using the symbolic notation usually employed when introducing the mathematical system known as a group. This could be followed by the students' investigation of the set of natural numbers under addition to see if it qualifies as a group. The procedure from this point on would be similar to that used for the younger students.

The concept of a mathematical system for high school students would be introduced as follows:

A mathematical system consists of:

1. A set of elements such as a, b, c...
2. An equivalence relation which separates the elements into classes.
3. One or more well defined operations such as addition or multiplication.
4. A set of postulates which the elements and operations satisfy.

One of the simplest but most important mathematical systems is the group. Let a, b, c be the elements of a mathematical system X with a well defined operation "$\odot$", and an equivalence relation " = ". Then X is a group if it satisfies these four postulates.

1. Closure: If a, b $\in$ X then a $\odot$ b $\in$ X.
2. Associative Law: If a, b, c $\in$ X, then (a $\odot$ b) $\odot$ c = a $\odot$ (b $\odot$ c).

3. Existence of an Identity: There exists an element $y \in X$ such that for each $b \in X$, $y \odot b = b \odot y = b$.

4. Existence of an Inverse: For each $b \in X$, there exists an element $b^* \in X$ such that $b \odot b^* = b^* \odot b = y$ for the y in 3.

BRUNER ON LEARNING AND INSTRUCTION

Psychologist Jerome Bruner reflected the prevailing attitude of the late 1950's when he wrote The Process of Education. In this book he discusses the importance of an emphasis on the structure of a discipline, a student's readiness for learning, the development of intuitive thinking and the importance of motivation. He stated that the main purpose of teaching is to "give a student as quickly as possible a sense of the fundamental ideas of a discipline--in other words to convey the structure of a subject." (Bruner, 1960, p.3) He assumed that all students had a fundamental desire to learn.

In his article "The Process of Education Revisited" published in 1971, Bruner conceeds that:

> The movement of which The Process of Education was a part was based on a formula of faith: that learning what students wanted to do, that they wanted to achieve an expertise in some particular subject matter. Their motivation was taken for granted. It also accepted the tacit assumption that everybody who came to these curricula in the school already had the beneficiary of the middle-class hidden curricula--that taught them analytic skills and launched them in the traditional use of mind.
>
> Failure to question these assumptions has of course caused much grief to all of us. (Bruner, 1971, p.19)

He sees the issues of 1971 as having to do with "how one gives back the initiative and a sense of potency, how one activates to tempt one to learn again." (Bruner, 1971, p.20) He says that there should be a "de-emphasis" on matters that deal with the structure of the discipline. Instead, he says that one might better concern himself with how to bring back a sense of values, by putting knowledge to work on those tasks.

Most of Bruner's writings took place prior to this change of position on structure and curriculum. Therefore, the following discussion reflects this earlier viewpoint.

The Nature of a Theory of Instruction

Bruner differentiates between a theory of learning and a theory of instruction. He perceives theories of learning and development as being descriptive for they indicate what is happening to a student but do not point out what should be done for efficient learning to occur. A theory of instruction is prescriptive in that it attempts to set forth rules about the most effective way for a student to acquire knowledge. Theories of instruction are also normative for they develop criteria and indicate the conditions for meeting them. Bruner states that this does not mean that a theory of learning and a theory of instruction have no influence on each other. On the contrary, a theory of instruction must consider and agree with developmental theories and learning theories.

Bruner presents four major features that he believes any theory of instruction should possess. First, a theory of instruction should specify the experiences which predispose students to learn and to undertake problem solving. Factors such as motivation, attitude and background affect the desire to learn. A cognitive factor, the predisposition to explore alternatives is emphasized by Bruner. He describes the three aspects of this exploration of alternatives as activation, motivation and direction. Activation occurs when a student has some optimal level of uncertainty or curiosity concerning a learning task. Maintance of exploration takes place when a student's gains from exploring alternatives is greater than his risks in obtaining an incorrect solution. Maintenance of exploration is fostered by a teacher who considers alternative solutions to a problem rather than

demanding "the correct solution." The proper direction of exploration depends on the student's understanding of the goal of the learning task. It is also influenced by his knowing how close he is to that goal when he is testing alternatives.

The second feature of a theory of instruction is its specification of the way in which the content of a discipline should be structured so that it can most readily be understood by a student. Bruner states "that since the goodness of a structure depends upon its power for simplifying information, for generating new propositions, and for increasing the manipulability of a body of knowledge, structure must always be related to the status and gifts of the learner." (In Hilgard, 1964, pp.307-308) He maintains that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development." (Bruner, 1960, p.33) Bruner sees the structure of a body of knowledge as dependent on three aspects of learning. They are 1) the mode of representation, 2) its economy and 3) its power.

The "mode of representation" of a body of knowledge is explained by Bruner as follows:

> Any domain of knowledge (or any problem within that domain of knowledge) can be represented in three ways: by a set of actions appropriate for achieving a certain result (inactive representation); by a set of summary images or graphics that stand for a concept without defining it fully (iconic representation); and by a set of symbolic or logical propositions drawn from a symbolic system that is governed by rules or laws for forming and transforming (symbolic representation). (Bruner, 1966, pp.44-45)

These modes of representation reflect Piaget's stages of cognitive development. The inactive mode would be used with children in Piaget's preoperational development when they can "act out" ideas which they encounter. Using the iconic mode children could be taught by pictures and diagrams. This

mode would be appropriate for students in the concrete operational stage. The symbolic mode of representation would be used with children in the formal operational stage who are ready to learn and express ideas at an abstract level.

At this point an apparent contradition in what Bruner says should be mentioned. In The Process of Education he states that a "preoperational" child cannot grasp the idea of reversibility. He also says that "because of a fundamental lack the child cannot understand certain fundamental ideas that lie at the basis of mathematics... It goes without saying that teachers are severely limited in transmitting concepts to a child at this stage, even in a highly intuitive manner." (p.35) This does not agree with another of his statements, that "any idea or problem or body of knowledge can be presented in a form simple enough so that any particular learner can understand it in recognizable form..." (Bruner, 1966, p.44) One might wonder if this last statement was made more for its dramatic effect than because he really believes it.

In addition to the mode of representation, the "economy" used in representing material affects the ability of a child to master it. Economy relates to the amount of information a person must maintain in his cognitive structure and process through his mind in order to achieve understanding. For example, it is economical to understand the commutative property before learning the multiplication tables for then the student can learn fewer multiplication facts. The sequencing and mode of presentation of ideas as well as the predisposition of the student will affect the economy a student employs in learning the ideas.

The effective "power" of any particular way of structuring an area of knowledge for a particular student "refers to the generative value of his

set of learned propositions." (Bruner, 1966, p.46) The power of a representation is its capacity to enable a student to connect ideas which may seem quite separate.

The third feature of a theory of instruction is that it should specify the best sequences in which to present a body of knowledge. Bruner states that "if it is true that the usual course of intellectual development moves from the inactive through iconic to symbolic representation of the world, it is likely that an optimum sequence will progress in the same direction." (Bruner, 1966, p.49)

Bruner believes that using a spiral curriculum is the best way to sequence material. He states his belief as follows:

> Let curriculum consist of a series of prerequisites in knowledge and in skill, to be mastered with a built-in reward in increased competence as the learner goes from one step to the next... Once mastered in that appropriate form, the learner can go on to more powerful, more precise forms of knowing and of using knowledge. It is already reasonably clear that this can be done in mathematics and science--though we are very, very far from doing it well. (Bruner, 1971a,p.18)

He sees a spiral curriculum as one in which a sequence of concepts and principles are "revisited" in a more abstract form over a period of time. In the spiral curriculum, early learning which involves a simple level of understanding functions as preparation for later learning with deeper understanding. For example, primary school students learn the concept of number in terms of natural numbers. As these students progress through school they are introduced to fractions and decimals (rational numbers), irrational numbers, imaginary and complex numbers. The concept of number is spiraled through the curriculum and each previous idea of number is expanded, generalized and abstracted to develop the new idea of number.

The fourth feature of a theory of instruction is that the theory should

specify the nature of rewards and punishment as well as a way of pacing them. As students mature, there should be a shift from extrinsic rewards such as teacher praise to intrinsic rewards such as the inner satisfaction obtained upon solving a difficult problem. The pacing of rewards and punishments depends "upon when and where the learner receives the corrective information, under what conditions such corrective information can be used...and the form in which the corrective information is received." (Bruner, 1966, p.50)

These four features of Bruner's theory of instruction indicates the importance he places on a properly sequenced, spiral curriculum that is presented in a discovery mode. The aspects of growth presented next support his theory.

Intellectual Growth

Bruner indicates that a vast number of aspects of intellectual growth exist and that from this large number of characteristics enough can be found to support any theory of learning or instruction. He confines his own list to the following:

1. Growth is characterized by increasing independence of response from the immediate nature of the stimulus.

2. Growth depends upon internalizing events into a "storage system" that corresponds to the environment.

3. Intellectual growth involves an increasing capacity to say to oneself, by means of words or symbols, what one has done or what one will do.

4. Intellectual development depends upon a systematic and contingent interaction between a tutor and a learner, the tutor already being equipped with a wide range of previously invented techniques that he teaches the child.

5. Teaching is vastly facilitated by the medium of language, which ends by being not only the medium for exchange but the instrument that the learner can then use himself in bringing order into the environment.

6. Intellectual development is marked by increased capacity to deal with several alternatives simultaneously, to tend to several sequences during the same period of time, and to allocate time and attention in a manner appropriate to those multiple demands. (Bruner, 1966, pp.5-6)

Bruner does not see this list as being complete nor does he consider the items to be disjoint. The first two aspects of growth involve the question of representation. A child must learn to control his response to a situation. For example, he may want to shout out an answer to a problem in class but he learns to raise his hand. He must also retain past learning in his cognitive structure and process it in such a way that he will be able to apply it to new learning.

The next three aspects of growth deal with the importance of symbols and language and the need for tutors to facilitate learning through these symbols and language. The importance of symbols is obvious in mathematics because of the precision of the language and the symbols used. Tutors, in the form of parents, peers, teachers and others, can facilitate the learning of the language of mathematics by making it appropriate for the students they teach.

Once the student has the ability to use language to communicate with others and express his ideas he is now ready for the next growth step in which he learns to deal with several alternatives or sequences at the same time. This is a sign of maturity.

Bruner sees education as promoting these aspects of growth by providing aids and activities that translate a students' experiences into more power systems of notation and ordering resulting in higher levels of knowledge. He believes that the most appropriate model of teaching and learning is discovery for it is congruent with his theory of growth and instruction.

Discovery

Bruner sees several advantages to be derived from discovery learning. It develops a student's thinking for it "helps the child learn the varieties of problem solving, of transforming information for better use, helps him to learn how to go about the taks of learning." (Bruner, 1962, p.87) Discovery also gives the student a sense of inner satisfaction without the need for extrinsic rewards. The benefits of discovery to the "heuristics of discovery" are described by Bruner as follows:

> It is only through the exercise of problem solving and the effort of discovery that one learns the working heuristics of discovery; the more one has practice, the more likely one is to generalize what one has learned into a style of problem solving or inquiry that serves for any kind of task encountered. (Bruner, 1962, p.94)

Discovery also aids in remembering because material that is organized in terms of a student's own interests and cognitive structures is more likely to be remembered.

Bruner does nto operationally define discovery. He does describe it by saying "discovery-teaching generally involves not so much the process of leading students to discover what is "out there" but rather, their discovering what is in their own heads." (Bruner, 1971a,p.72) It appears that he tends to equate discovery with problem solving but he does not state this explicitly.

On Learning Mathematics

Bruner proposes that there are two ways to go about teaching and learning mathematics. The first which he calls "unmasking" consists of discovering the abstract properties that are characteristic of the solutions to practical or concrete problems. The second approach to teaching mathematics is to work directly on the problems themselves. The mathematician and the student learning mathematics for the first time use both methods on different occasions.

Four aspects of teaching and learning mathematics are presented by Bruner and they are related to both of the ways of teaching and learning presented above. Discovery, the first asepct, has already been described. He defines discovery in mathematics as a process of working, actively manipulating and representing information in continuing cycles so that new information can be found. The second aspect, intuition, "implies the act of grasping the meaning or significance or structure of a problem without explicit reliance on the analytic apparatus of one's craft." (Bruner, 1960 (a) p.613) This is the flash of insight that comes prior to proof. It gives hypotheses to be tested and comes from a classroom environment in which the process of mathematical activity is promoted rather than the importance of always having "the correct answer."

Bruner's third aspect of teaching and learning mathematics is concerned with the problem of translation of intuitive ideas in mathematics. He sees translation as involving three problems, the problems of structure, sequence and embodiment. To teach an understanding of structure one must find the language and ideas that are within the grasp of the student being taught. One could teach the concept of "group" to a seventh grade student using the rotations of a square problem presented earlier for it is in language appropriate for such a student. The sequencing of ideas is important for the nature of mathematics is such that if one step in the sequence is not understood (either because the child has not yet reached the Piagetian stage at which he can understand the step, because the learner was not motivated to learn it or because it was improperly taught) the student may not be able to progress to the next step. The sequence of information in mathematics texts then is important to the problem of translation. The third problem in

translation is that of embodiment. How does one translate a concept into a simpler form so that it can be understood in a form and language which can be understood by a child of any age. Bruner sees the problem of translation with its subproblems of structure, sequencing and embodiment as being solved through the use of a spiral curriculum.

Readiness, the fourth aspect of teaching and learning mathematics is "a function not so much of maturation as it is of our intentions and our skills at translating ideas into the language and concepts of the age level we are teaching." (Bruner, 1962, p.109) Here again Bruner is promoting the spiral curriculum to give continuity and depth to mathematics. He speaks of readiness "that provides the thread of delight in what we have called the spiral curriculum. The great structural themes in learning lend themselves to just such an approach, to constant revisits yielding new discovery, new surprise and its reduction, new and deeper simplification." (Bruner, 1962, pp.110-111)

In summary, Bruner believes that to teach mathematics to a student one must provide concepts at his readiness level, foster his intuition through a discovery approach and arrange the mathematics curriculum in a spiral so that the student can understand the structure and follow the sequence of the concepts presented.

A COMPARISON OF THE TWO THEORIES

A controversy exists between the values of discovery compared to the value of reception learning. Ausubel describes the difference between reception learning and learning by discovery as follows:

> In reception learning (rote or meaningful) the entire content of what is to be learned is presented to the learner in final form. The learning task does not involve any independent discovery on his part. He is only required to internalize the material (e.g., a list of nonsense syllables or paired associates, a poem or geometrical theorem) that is presented to him so that it is available and reproducible at some future date. The essential feature of discovery learning (e.g., concept formation, rote or meaningful problem solving), on the other hand, is that the principal content of what is to be learned is not given but must be independently discovered by the learner before he can internalize it. (Ausubel, 1963, p.16)

This statement not only indicates Ausubel's position on reception and discovery learning but also reflects his belief that the long range goal of education is to transmit a clear and stable body of knowledge (content). Bruner's emphasis is on education as a process, one in which students actively engage in problem solving in order to develop strategies that can be used in learning any body of knowledge. He sees an understanding of the structure of mathematics as a primary goal of education whereas Ausubel's emphasis is on the mastery of skills, concepts and principles. Ausubel states that "heuristic skill is no substitute for substantive knowledge in most everyday and academic problem solving." (Ausubel, 1968, p.548)

Bruner and other promoters of discovery claim that reception learning is rote and that problem solving leads to meaningful learning. Ausubel argues that both expository and problem solving techniques can be either rote or meaningful depending on the conditions under which learning occurs.

The active or passive role of a student during learning is another source of disagreement between the two psychologists. Bruner sees reception learning as placing students in a passive role. The teacher is in control of pacing and directing instruction and the students are to internalize the information presented. Bruner does not believe that knowledge can be "given" to students. He sees the acquisition of knowledge as resulting from a discovery process in which students are able to actively participate. Ausubel argues that often most of the students' active effort that should go into discovery is instead spent in trying to figure out what the teacher wants. He believes that reception learning can be an important, meaningful and active learning experience just as discovery can be passive and rote.

A comparison of the positions of the psychologists in terms of the efficiency of the proposed modes of presentation is important. Ausubel believes that the time factor should be considered. He points out that in discovery learning the student must first rearrange the given information, integrate it with what he already knows and reorganize this combined information so that he obtains desired rule or end product. This is more involved than reception learning for in discovery there is a problem solving stage prior to understanding. Ausubel does see discovery as useful under certain conditions. He concedes that "discovery learning ranges in complexity from concept formation and the formation of generalizations to problem solving and creativity. In these particular types of learning <u>there is no alternative</u> to discovery learning, so that the discovery-reception controversy makes no sense there." (Ausubel and Robinson, 1969, p.481) Ausubel's primary objection to the promotion of discovery is Bruner's implication that it is the <u>only</u> mode in which meaningful learning can take place.

The influence of Piaget on both Bruner and Ausubel is shown in their use of his stages of development. Ausubel indicates that reception learning using advance organizers is most appropriate for students who have acquired the stage of formal operations. He sees discovery learning as seldom necessary unless students are in the concrete stage of operation where there is a need for some empirical experience to generate meaningfulness. This shows that a true dicotomy does not really exist between the two theories. Ausubel emphasizes the older learner and while Bruner is concerned with all learners, he presses for the introduction of discovery to younger learners.

Bruner is critical of traditional methods of instruction (expository mode) for he feels that students develop analytic ways of thinking at the expense of intuitive thinking. Expository teaching also can foster intuition. As the student looks at a concept from different points of view and reconciles it with similar information, he too can have insight into relationships among ideas that are not explicitedly stated in the teacher's presentation.

The ability of a student to test the meaningfulness of learning through discovery is one of the advantages of the model. Ausubel agrees that in this respect problem solving can be beneficial. One can teach problem solving strategies through reception learning but can not determine if the students understand unless they try to apply these strategies to novel cases. Both Bruner and Ausubel agree that discovery also facilitates transfer in that the student actually develops his own generalizations and recognizes them more easily in other contexts and contents.

Ausubel and Bruner also agree that a moderate amount of discrepancy or gap between existing ideas and new information is beneficial for it creates curiosity. This is necessary if a student is to have what Bruner calls an "attitude of discovery" and Ausubel describes as a "meaningful learning set."

In essence both phrases deal with motivation, a necessary component of any meaningful learning.

Another component of learning is the curriculum and although both men promote their own ideas, Ausubel's belief in a hierarchially arranged curriculum is not inconsistent with Bruner's idea of a spiral curriculum. Both are aware of the need to develop and refine certain concepts throughout the course of a student's school years. Ausubel agrees that the developmental characteristics of a young student's cognitive function do not require that the use of these early years be restricted to teach "fundamental skills." He says that carefully selected concepts, those that have value as anchorage for later ideas, can be introduced early in the spiral. However, he does not agree with Bruner's stand that any concept can be taught effectively in some form to any child in any stage of development. To try to do so can often be a waste of time and effort.

Both the advance organizer model and the discovery approach have practical applications in the classroom. Although the advance organizer model is more beneficial to adolescents and older students, it can be used with younger students. The discovery model has applications in all classrooms when used to teach appropriate concepts. The two models need not be separate. A lesson could begin with expository segments that reviews and prepares a student for discovery. This expository presentation could take the form of an advance organizer and thus, the two strategies could be combined in a given lesson.

The advance organizer and discovery teaching/learning models both can be applied to mathematics classrooms. Student satisfaction found in the discovery of a solution to a novel problem or in the discovery of a concept or principle is an important advantage of this model. The discovery lesson must be guided by the teacher so that students learn from their errors and are redirected toward the intended results. Unguided discovery is of little benefit to the

student nor is it efficient. Also, the advance organizer with its ideational anchorage, subsumption, progressive differentiation and integrative reconciliation can benefit students in mathematics classes. By means of the organizer, a math content that is hierarchially structured can be presented that complements the students' cognitive structure. Thus, detailed mathematical ideas can be linked to those that are more abstract, general and inclusive in such a way that the students develop a clear and stable understanding of not only the mathematical idea being presented but also its relationship to previously presented ideas.

One might look at the research concerning these teaching/learning models hoping for an answer as to which model is "best" but the research results are disappointing. For example, Barnes and Clawson (1975) reviewed 32 studies that examined the benefits of using an advance organizer and found that only 12 of the 32 studies supported the idea that an advance organizer facilitates meaningful learning. In a subsequent study done by Mayer (1979) the author disagrees with this earlier interpretation of the data by Barnes and Clawson. He says that many of these studies were improperly conducted and claims that as the reason for their failure to support the use of advance organizers. Research on the discovery model also indicates this conflict between significant and nonsignificant results and there is a lack of proof or disproof of the value of the model.

Instead of looking toward the existing research one might do better to look at the nature of the mathematical content that he is teaching and the nature of the students involved. Then using that as a basis one might select the model that is appropriate for teaching a given concept to a particular student group. In this way, meaningful learning can occur.

BIBLIOGRAPHY

Andree, Richard V. Modern Abstract Algebra. New York: Holt, Rinehart and Winston, Inc., 1958.

Ausubel, David P. "In Defense of Verbal Learning." Educational Theory XI (1961): 15-25.

_____ The Psychology of Meaningful Verbal Learning. New York: Grune and Stratton, 1963.

_____ "Some Psychological and Educational Limitations of Learning by Discovery." The Arithmetic Teacher (May, 1964): 290-302.

_____ Educational Psychology, A Cognitive View. New York: Holt, Rinehart and Winston, Inc., 1968.

_____ "Facilitating Meaningful Verbal Learning in the Classroom." The Arithmetic Teacher (Feb., 1968): 126-132.

_____ "A Cognitive Theory of School Learning." Psychology in the School VI (1969): 331-335.

Ausubel, David P. and Robinson, Floyd. School Learning. New York: Holt, Rinehart and Winston, Inc., 1969.

Barnes, Buckley R. and Clawson, Elmer. "Do Advance Organizers Facilitate Learning? Recommendations for Further Research Based on an Analysis of 32 Studies." Review of Educational Research (Fall, 1975): 637-659.

Bruner, Jerome. "On Learning Mathematics." The Mathematics Teacher (Dec., 1960): 610-619.

_____ The Process of Education. Cambridge, Mass.: Harvard University Press, 1960.

_____ On Knowing: Essays for the Left Hand. Cambridge, Mass.: The Belknap Press of Harvard University Press, 1962.

_____ Toward a Theory of Instruction. Cambridge, Mass.: The Belknap Press of Harvard University Press, 1966.

_____ "The Process of Education Revisited." Phi Delta Kappan (Sept., 1971): 18-21.

_____ The Relevance of Education. New York: Norton and Co., Inc., 1971 (a).

Gibson, Janice T. Psychology for the Classroom. Englewood Cliffs, New Jersey: Prentice Hall Inc., 1976.

Higgins, Jon. Mathematics Teaching and Learning. Worthington, Ohio: Charles A. Jones Publishing Company, 1973.

Hilgard, Ernest R. (Editor) Theories of Learning and Instruction (Sixty Third Yearbook). Chicago: National Society for the Study of Education, 1964.

Joyce, Bruce and Weil, Marsha. Academic Models of Teaching. Omaha, Nebrasks: Center for Urban Education, 1976.

Kennedy, Leonard. Guiding Children to Mathematical Discovery. Belmont, California: Wadsworth Publishing Co., Inc., 1975.

Mayer, Richard E. "Can Advance Organizers Influence Meaningful Learning?" Review of Educational Research (Summer, 1979): 371-383.